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THE

CONSTITUTION OF MAN

CONSIDERED IN

RELATION TO EXTERNAL OBJECTS.

BY

GEORGE COMBE.

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THE Author is gratified to find that the present Work has been received with increasing favour, in proportion as it has been studied. The First Edition was published in 1828;—it consisted of only 1500 copies, and nearly seven years elapsed before another edition was demanded in this country. In March 1835, however, a Second Edition, of 3000 copies, was published, which was bought up in four months. In August 1835, a Third Edition (stereotyped) was published, in 12mo; and the present is the Fourth Edition, in a new and cheaper form, which has also been stereotyped. Three editions have been printed in the United States of America, a translation in French has appeared in Paris, another in Swedish at Stockholm; and the Author has just received, from Germany, an application for the most recent corrections, with a view to a translation into the language of that country. The present edition, being the fourth, is named "THE PEOPLE'S EDITION," and is sold at ONE SHILLING AND SIXPENCE. It should be ordered under this name, otherwise the more expensive book may be sent at the price of four shillings.

23, CHARLOTTE SQUARE, EDINBURGH,
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The first impression of "The People's Edition," consisting of 2000 copies, was published in October 1835.

The second impression, consisting of 5000 copies, was published in November 1835.

The third impression, also consisting of 5000 copies, was published on the 1st January 1836.

The fourth impression, also consisting of 5000 copies, was published on the 1st March 1836.

The fifth impression, also consisting of 5000 copies, was published on the 1st August 1836.

The present is the *sixth* impression, and, owing to the increasing demand for the work, it consists of 10,000 copies: Total, 32,000 copies printed within one year. It is offered to "The People," with the Author's grateful acknowledgments for the spirited manner in which they have met his endeavour to bring the work within the compass of their pecuniary resources.

He has recently received a letter from America, stating that six editions, amounting in all to 10,000 copies, have been published in the United States. This affords an additional proof of the interest taken in the work as one calculated for public instruction.

With a view to depreciate the merits of the work, the assertion has been made in various quarters, that its extensive circulation has been owing chiefly to contributions made from the Henderson Bequest, to enable the Author to lower its price. The statement is unfounded. Mr Henderson's Trustees have contributed nothing towards the expense of "The People's Edition."

Another report is current—that the sales have been made chiefly to the lower orders of the people. This also is untrue:—An edition in 12mo has run through the following impressions:—

Published in June 1828, price 6s.	1500 copies.
March 1835, price 6s.	3000 —

N.B.—Mr Henderson's Trustees contributed towards reducing the price of 2000 copies of this edition to 2s. 6d. The Author reduced the price of the remaining 1000 to 4s. without any compensation.

August 1835, price 4s.	1000 —

Mr Henderson's Trustees, in consideration of the price being permanently reduced to 4s., paid L.22, 2s. towards the expense of the stereotype plates for this edition, and L.20 for advertising; but they did not pay any part of the expense of setting the types, of paper, or of printing.

November 1835, price 4s.	1000 —
March 1836, price 4s.	1500 —
October 1836, price 4s.	3000 —
Total,	11,000 copies.

These facts show that the middle and upper classes of society have taken at least as great an interest in the work, in proportion to their numbers, as "the People."

23, CHARLOTTE SQUARE,
10*th October* 1836.

HENDERSON BEQUEST.

On 27th May 1829, the late W. R. Henderson, Esq. younger of Warriston and Eildon Hall, executed a deed of settlement, by which he conveyed to certain trustees such funds as he should die possessed of; and, in the event of his dying without leaving children, he appointed them to pay certain legacies and annuities to individual friends, and gave the following instructions regarding the application of the residue of his funds.

"And, lastly, the whole residue of my means and estate shall, after answering the purposes above written, be applied by my said trustees in whatever manner they may judge best for the advancement and diffusion of the science of Phrenology, and the practical application thereof in particular; giving hereby and committing to my said trustees, the most full and unlimited power to manage and dispose of the said residue, in whatever manner shall appear to them best suited to promote the ends in view: Declaring, that if I had less confidence in my trustees, I would make it imperative on them to print and publish one or more editions of an 'Essay on the Constitution of Man considered in Relation to External Objects, by George Combe,'—in a cheap form, so as to be easily purchased by the more intelligent individuals of the poorer classes, and Mechanics' Institutions, &c.; but that I consider it better only to request their particular attention to this suggestion, and to leave them quite at liberty to act as circumstances may seem to them to render expedient; seeing that the state of the country, and things impossible to foresee, may make what would be of unquestionable advantage now, not advisable at some future period of time. But if my decease shall happen before any material change affecting this subject, I request them to act agreeably to my suggestion. And I think it proper here to declare, that I dispose of the residue of my property in the above manner, not from my being carried away by a transient fit of enthusiasm, but from a deliberate, calm, and deep-rooted conviction, that nothing whatever hitherto known can operate so powerfully to the improvement and happiness of mankind, as the knowledge and practical adoption of the principles disclosed by Phrenology, and particularly of those which are developed in the Essay on the Constitution of Man, above mentioned."

Mr Henderson having died on 29th May 1832, his trustees, after realising his funds, assigned a sum for publishing an edition of the present work, consisting of two thousand copies, at the price of two shillings and sixpence per copy. This was considerably below the cost of production. The publication took place in March 1835, and before the end of May the whole copies were bought up—chiefly by the class of persons for whom Mr Henderson had intended it, the greatest sales having taken place in Glasgow, Dundee, Dunfermline, and other manufacturing towns in Scotland, and in Manchester and similar towns in England. A separate and finer impression of one thousand copies, taken from the same types as the Henderson Edition, was bought up at the price of four shillings, between May and August, and the demand for the work continues unabated.

Mr Henderson's trustees, with every wish to continue to aid the circulation of the work by reducing the price, have not the means of doing so. The only sum, at present, applicable by them to the advancement of Phrenology, is that remaining annually after payment of the legacies and annuities; and from all the annuitants being alive, and likely to live for many years, its amount is so small that the edition of March 1835 anticipated the surplus of two years. Their means being thus limited, the trustees were under the necessity of circumscribing their contribution towards the expenses of the third edition to a very small sum; and in consequence, it continues to be sold in one volume 12mo, consisting of three hundred and eighty-two pages, at four shillings. This price, however, is much too high to admit of an extensive purchase of the work by the operative classes; for, assuming their average annual income to be fifty pounds (an estimate above rather than below the truth), a book at one shilling would bear the same proportion to their means of purchase that one at ten shillings would do to a class whose income was five hundred pounds per annum. From overlooking this obvious fact, and observing that the operatives do not purchase books on moral and intellectual science, the inference is unjustly drawn that they have no natural taste for them. One result of this conviction has been, that whenever works have been got up by the higher and middle classes for the instruction of the people, such subjects have been carefully avoided. The Library of Useful Knowledge, the Penny Magazine, and almost all the cheap weekly publications, with the exception of Chambers's Edinburgh Journal, might be referred to as examples; and even Lord Brougham, the great patron of the education of the people, has been misled so far by the popular opinion, as to have published the first volume of a Treatise on Natural

Theology, containing less than one-half of the quantity of type in the present volume, at eight shillings, a sum quite beyond the means of the mass of British operatives. In like manner, the trustees of the late Earl of Bridgewater, with the munificent donation of eight thousand pounds at their command, for diffusing a knowledge of Natural Theology, have so managed its application, that they have procured the publication of eight different treatises at actually higher prices than would have been charged, had booksellers themselves brought them forward as speculations of their own; whereas, by producing one able and comprehensive work, at a cheap rate, they might have insured its wide diffusion among that class of the community which stands most in need of instruction, but which has the smallest means of purchasing expensive books. These facts appear to prove, either that they and Lord Brougham do not consider Natural Theology as a fit subject for the instruction of the people, or that they doubt the people's inclination to be so instructed. The first proposition cannot be seriously maintained; and the second, when examined, is found not to rest on any stable foundation.

One important effect of the sale of two thousand copies of the present work at the price of two shillings and sixpence, within two months, is to shake the above-mentioned prepossession to the foundation; because it appears to show that the operative classes do take an interest in works on ethical subjects, and are disposed to study them extensively and with avidity, if only placed within their reach. Impressed with this conviction, the Author has ventured to publish the present edition, in a form resembling that of the most popular Magazines, and at One Shilling and Sixpence per copy, a price corresponding in some degree with the pecuniary resources of the class for whom it is intended. To distinguish it from the third, it is named THE PEOPLE'S EDITION.

If the sale shall be extensive, the benefit of the example will not be lost to the people. On a reasonable computation, their numbers, compared with those of the middle and higher classes, are as seven or eight to one. In publishing books, the limited sale is the great cause of a high price; in so much that if one thousand copies of a work cost one hundred pounds, the retail price of each copy would be fixed at six shillings by the publisher, who is taught by experience that this rate is necessary to his indemnification; whereas, if he were insured of a demand for eight thousand copies, he could afford to sell the book at three shillings per copy, with an equal profit to himself. The people therefore may command a supply of literature of almost every description, by patronising it in proportion to their numbers, when brought within the limits of their pecuniary resources.

1st October 1835.

PREFACE.

THIS Work would not have been presented to the Public, had I not believed that it contains views of the constitution, condition, and prospects of Man, which deserve attention; but these, I trust, are not ushered forth with any thing approaching to a presumptuous spirit. I lay no claim to originality of conception. My first notions of the natural laws were derived from a manuscript work of Dr Spurzheim, with the perusal of which I was honoured in 1824, and which was afterwards published under the title of "A Sketch of the Natural Laws of Man, by G. Spurzheim, M.D." A comparison of the text of it with that of the following pages, will show to what extent I am indebted to my late excellent and lamented master and friend for my ideas on the subject. All my inquiries and meditations since have impressed me more and more with a conviction of their importance. The materials employed lie open to all. Taken separately, I would hardly say that a new truth has been presented in the following work. The parts have nearly all been admitted and employed again and again, by writers on morals, from the time of Socrates down to the present day. In this respect, there is nothing new under the sun. The only novelty in this work respects the relations which acknowledged truths hold to each other. *Physical laws* of nature, affecting our physical condition, as well as regulating the whole material system of the universe, are universally acknowledged to exist, and constitute the elements of natural philosophy and chemical science: Physiologists, medical practitioners, and all who take medical aid, admit the existence of *organic laws:* And the sciences of government, legislation, education, indeed our whole train of conduct through life, proceed upon the admission of *laws in morals.* Accordingly, the laws of nature have formed an interesting subject of inquiry to philosophers of all ages; but, so far as I am aware, no author has hitherto attempted to point out, in a systematic form, the relations between those laws and the constitution of Man; which must, nevertheless, be done, before our knowledge of them can be beneficially applied. Dr Spurzheim, in his "Philosophical Principles of Phrenology," adverted to the independent operation of the several natural laws, and pointed out some of the consequences of this doctrine, but without entering into detailed elucidations. The great object of the following Treatise is to exhibit several of the most important natural laws, and their relations and consequences, with a view to the improvement of education, and the regulation of individual and national conduct.

But although my purpose is practical, a theory of Mind forms an essential element in the execution of the plan. Without it, no comparison can be instituted between the natural constitution of man and external objects. Phrenology appears to me to be the clearest, most complete, and best supported system of Human Nature, which has hitherto been taught; and I have assumed it as the basis of this work. But the practical value of the views to be unfolded does not depend entirely on Phrenology. The latter, as a theory of Mind, is itself valuable, only in so far as it is a *just exposition* of what previously existed in human nature. We are physical, organic, and moral beings, acting under the sanction of general laws, whether the connection of different mental qualities with particular portions of the brain, as taught by Phrenology, be admitted or denied. Individuals, under the impulse of passion, or by the direction of intellect, will hope, fear, wonder, perceive, and act, whether the degree in which they habitually do so be ascertainable by the means which it points out or not. In so far, therefore, as this work treats of the known qualities of Man, it may be instructive even to those who contemn Phrenology as unfounded; while it can prove useful to none, if the doctrines which it unfolds shall be found not to be in accordance with the principles of human nature, by whatever system these may be expounded.

Some individuals object to all mental philosophy as useless, and argue, that, as Mathematics, Chemistry, and Botany, have become great sciences, without the least reference to the faculties by means of which they are cultivated, so Morals, Religion, Legislation, and Political Economy, have existed, have been improved, and may continue to advance, with equal success, without any help from the philosophy of mind. Such objectors, however, should consider that lines, circles, and triangles—earths, alkalis, and acids—and also corollas, stamens, pistils, and stigmas, are objects which exist independently of the mind, and may be investigated by the application of the mental powers, in ignorance of the constitution of the faculties themselves—just as we may practise archery without studying the anatomy of the hand; whereas the objects of moral and political philosophy are the qualities and actions of the mind itself: These objects have no existence independently of mind; and they can no more be syste-

matically or scientifically understood without the knowledge of mental philosophy, than optics can be cultivated as a science in ignorance of the structure and modes of action of the eye.

I have endeavoured to avoid religious controversy. "The object of Moral Philosophy," says Mr Stewart, "is to ascertain the general rules of a wise and virtuous conduct in life, in so far as these rules may be discovered by the unassisted light of nature; that is, by an examination of the principles of the human constitution, and of the circumstances in which man is placed."* By following this method of inquiry, Dr Hutcheson, Dr Adam Smith, Dr Reid, Mr Stewart, and Dr Thomas Brown, have, in succession, produced highly interesting and instructive works on Moral Science; and the present Treatise is a humble attempt to pursue the same plan, with the aid of the new lights afforded by Phrenology. I confine my observations exclusively to Man as he exists in the present world, and beg that, in perusing the subsequent pages, this explanation may be constantly kept in view. In consequence of forgetting it, my language has occasionally been misapprehended, and my objects misrepresented. When I speak of man's highest interest, for example, I uniformly refer to man as he exists in this world; but as the same God presides over both the temporal and the eternal interests of the human race, it seems to me demonstrably certain, that what is conducive to the one, will in no instance impede the other, but will in general be favourable to it also. This work, however, does not directly embrace the interests of eternity. These belong to the department of theology, and demand a different line of investigation: I confine myself exclusively to philosophy.

Since the First Edition of this work appeared, on 9th June 1828, additional attention has been paid to the study of the laws of Nature, and their importance has been more generally recognised. In "A Discourse on the Studies of the University, by Adam Sedgwick, M. A., &c." of which a third edition was published at Cambridge in 1834, the author remarks, that "we are justified in saying, that, in the moral as in the physical world, God seems to govern by general laws." "I am not now," says he, "contending for the doctrine of moral necessity; but I do affirm, that the moral government of God is by general laws, and that it is our bounden duty to study these laws, and, as far as we can, to turn them to account." "If there be a superintending Providence, and if his will be manifested by general laws operating both on the physical and moral world, then must a violation of these laws be a violation of his will, and be pregnant with inevitable misery." "Nothing can, in the end, be expedient for man, except it be subordinate to those laws the Author of Nature has thought fit to impress on his moral and physical creation." "In the end, high principle and sound policy will be found in the strictest harmony with each other."

These are precisely the views which it is the object of the present work to enforce; and it is gratifying to me to see them so ably and eloquently recommended to the attention of the students of the University of Cambridge.

* Outlines of Moral Philosophy, p. 1.

23, Charlotte Square,
Edinburgh, *7th August* 1835.

INTRODUCTORY REMARKS.

GENERAL VIEW OF THE CONSTITUTION OF HUMAN NATURE, AND ITS RELATIONS TO EXTERNAL OBJECTS.

Man compared with the lower animals—Opposite phases of his character—The world seems constituted on the principle of slow and progressive improvement—Light thrown by geology on the physical history of the globe before the creation of man—Death and reproduction existed long before his creation—The world arranged so as to afford him every inducement to cultivate and exercise his understanding—Power of man to control and turn to account the capabilities of the physical world—Barbarism and civilisation compared—Progressive improvement of man apparent from history—Reasons for anticipating a vast future increase of the happiness and intelligence of the race—Mental philosophy hitherto very imperfect—Do the physical and moral worlds contain within themselves the elements of amelioration, or is human improvement to be expected from spiritual influences?—The capabilities of physical and human nature have hitherto been ignorantly undervalued—Errors of theologians on this subject—Light thrown upon the question by phrenology—Constitution of the human mind, and its adaptation to the external world, blinked in the Bridgewater Treatises—Natural laws, physical, organic, and moral—The independent operation of these, very important in relation to the moral government of the world—The present work not hostile to religion—Philosophy and revelation cannot be at variance—Physiological preliminaries of moral and religious conduct must exist before preaching can produce its full effects.

In surveying the external world, we discover that every creature and every physical object has received a definite constitution, and been placed in certain relations to other objects. The natural evidence of a Deity and his attributes is drawn from contemplating these arrangements. Intelligence, wisdom, benevolence, and power, characterise the works of creation; and the human mind ascends by a chain of correct and rigid induction to a great First Cause, in whom these qualities must reside. But hitherto this great truth has rather excited a barren though sublime admiration, than led to beneficial practical results.

Man obviously stands pre-eminent among sublunary objects, and is distinguished by remarkable endowments above all other terrestrial beings. Nevertheless, no creature presents such anomalous appearances as man. Viewed in one aspect, he almost resembles a demon; in another, he still bears the impress of the image of God. Seen in his crimes, his wars, and his devastations, he might be mistaken for an incarnation of an evil spirit; contemplated in his schemes of charity, his discoveries in science, and his vast combinations for the benefit of his race, he seems a bright intelligence from Heaven. The lower animals exhibit a more simple and regulated constitution. The lion is bold and ferocious, but he is regularly so; and, besides, is placed in circumstances suited to his nature, in which at once scope is given and limits are set to the gratification of his instincts. The sheep, on the other hand, is mild, feeble, and inoffensive; but its external condition also is suited to its constitution, and it apparently lives and flourishes in as great enjoyment as the lion. The same remark applies to all the inferior creatures; and the idea which I wish particularly to convey is, that their bodily organs, faculties, instincts, and external circumstances, form parts of a system in which adaptation and harmony are discoverable; and that the enjoyment of the animals depends on the adaptation of their constitution to their external condition. If we saw the lion one day tearing in pieces every animal that crossed his path, and the next oppressed with remorse for the death of his victims, or compassionately healing those whom he had mangled, we should exclaim, what an inconsistent creature! and conclude that he could not by possibility be happy, owing to this opposition among the principles of his nature. In short, we should be strikingly convinced that two conditions are essential to enjoyment; first, that the different instincts of an animal must be in harmony with each other; and, secondly, that its whole constitution must be in accordance with its external condition.

When, keeping these principles in view, we direct our attention to Man, very formidable anomalies present themselves. The most opposite instincts or impulses exist in his mind; actuated by Combativeness, Destructiveness, Acquisitiveness, and Self-Esteem, the moral sentiments being in abeyance, he is almost a fiend; on the contrary, when inspired by Benevolence, Veneration, Hope, Conscientiousness, Ideality, and Intellect, the benignity, serenity, and splendour of a highly elevated nature, beam from his countenance, and radiate from his eye. He is then lovely, noble, and gigantically great. But how shall these conflicting tendencies be reconciled? And how can external circumstances be devised that shall accord with such heterogeneous elements? Here, again, a conviction of the power and goodness of the Deity comes to our assistance. Man is obviously an essential and most important part of the present system of creation, and, without doubting of his future destinies, we ought not, so long as our knowledge of his nature is incomplete, to consider his condition here as inexplicable. The nature of man has hitherto, to all philosophical purposes, been unknown, and both the designs of the Creator and the situation of man have been judged of ignorantly and rashly. The sceptic has advanced arguments against religion, and crafty deceivers have in all ages founded systems of superstition on the disorder and inconsistency which are too readily admitted to be inseparable attributes of human existence on earth. But I venture to hope that man will yet be found in harmony with himself and with the condition in which he is placed.

I am aware that some individuals, whose piety is entitled to respect, conceive, that as the great revolutions of human society, as well as all events in the lives of individuals, take place under the guidance of the Deity, it is presumptuous, if not impious, to endeavour to scan their causes and effects. But as the Creator has bestowed faculties on man, it is presumable that He governs him in accordance with them, and their constitution implies that he should investigate creation. The young swallow, when it migrates on the approach of the first winter of its life, is impelled by an instinct implanted by the Deity; it neither knows the causes that prompt it to fly, nor the end to be attained by its flight. But its mental constitution is wisely adapted to this condition; for it has no powers stimulating it to reflect on itself and external objects, and to inquire whence came its desires, or to what object they tend. Man, however, has been framed differently. The Creator has bestowed on him faculties to observe phenomena, and to trace cause and effect; and *he has constituted the external world to afford scope to these powers.* We are entitled, therefore, to say, that it is the Creator himself who has commanded us to observe and inquire into the causes that prompt us to act, and the results that will naturally follow; and to modify our conduct according to the discoveries which we shall make.

To enable us to form a just estimate of our duty

and interest in the rational occupants of this world, we may inquire briefly into the constitution of external nature, and of ourselves.

The constitution of this world does not look like a system of optimism. It appears to be arranged in all its departments on the principle of slow and progressive improvement. Physical nature itself has undergone many revolutions, and apparently has constantly advanced. Geology seems to show a distinct preparation of it for successive orders of living beings, rising higher and higher in the scale of intelligence and organisation, until man appeared.

The globe, in the first state in which the imagination can venture to consider it, says Sir H. Davy,* appears to have been a fluid mass, with an immense atmosphere revolving in space round the sun. By its cooling, a portion of its atmosphere was probably condensed into water, which occupied a part of its surface. In this state no forms of life, such as now belong to our system, could have inhabited it. The crystalline rocks, or, as they are called by geologists, the primary rocks, which contain no vestiges of a former order of things, were the result of the first consolidation on its surface. Upon the further cooling, the water, which, more or less, had covered it, contracted; depositions took place; shell-fish and coral insects were created, and began their labours. Islands appeared in the midst of the ocean, raised from the deep by the productive energies of millions of zoophytes. These islands became covered with vegetables fitted to bear a high temperature, such as palms, and various species of plants, similar to those which now exist in the hottest parts of the world. The submarine rocks of these new formations of land became covered with aquatic vegetables, on which various species of shell-fish, and common fishes, found their nourishment. As the temperature of the globe became lower, species of the oviparous reptiles appear to have been created to inhabit it; and the turtle, crocodile, and various gigantic animals of the Saurian (lizard) kind seem to have haunted the bays and waters of the primitive lands. But in this state of things, there appears to have been no order of events similar to the present. Immense volcanic explosions seem to have taken place, accompanied by elevations and depressions of the surface of the globe, producing mountains, and causing new and extensive depositions from the primitive ocean. The remains of living beings, plants, fishes, birds, and oviparous reptiles, are found in the strata of rocks which are the monuments and evidence of these changes. When these revolutions became less frequent, and the globe became still more cooled, and inequalities of temperature were established by means of the mountain chains, more perfect animals became its inhabitants, such as the mammoth, megalonix, megatherium, and gigantic hyena, many of which have become extinct. Five successive races of plants, and four successive races of animals, appear to have been created and swept away by the physical revolutions of the globe, before the system of things became so permanent as to fit the world for man. In none of these formations, whether called secondary, tertiary, or diluvial, have the fossil remains of man, or any of his works, been discovered. At last, man was created, and since that period there has been little alteration in the physical circumstances of the globe.

"In all these various formations," says Dr Buckland, "the coprolites" (or the dung of the saurian reptiles in a fossil state, exhibiting scales of fishes and other traces of the prey which they had devoured) "form records of warfare waged by successive generations of inhabitants of our planet on one another; and the general law of nature, which bids all to eat and be eaten in their turn, is shown to have been co-extensive with animal existence upon our globe, the *carnivora* in each period of the world's history fulfilling their destined office to check excess in the progress of life, and maintain the balance of creation."

This brief summary of the physical changes of the globe, is not irrelevant to our present object. The more that we discover of creation, the more conspicuously does uniformity of design appear to pervade its every department. We perceive here the physical world gradually *improved* and *prepared for man.*

Let us now contemplate Man himself, and his adaptation to the external creation. The world, we have seen, was inhabited by living beings, and death and reproduction prevailed before Man appeared. The order of creation seems not to have been changed at his introduction:—he appears to have been adapted to it. He received from his Creator an organised structure, and animal instincts. The brain is unquestionably the workmanship of God, and there exist in it organs of faculties impelling man to kill that he may eat, to oppose aggression, and to shun danger—instincts which clearly imply a constitution of external nature, corresponding to that which we see existing around him. Man, then, apparently took his station among, yet at the head of, the beings that inhabited the earth at his creation. He is to a certain extent an animal in his structure, powers, feelings, and desires, and is adapted to a world in which death reigns, and generation succeeds generation. This fact, although so trite and obvious as to appear scarcely worthy of being noticed, is of importance in treating of Man; because the human being, in as far as he resembles the inferior creatures, is capable of enjoying a life like theirs: he has pleasure in eating, drinking, sleeping, and exercising his limbs; and one of the greatest obstacles to improvement is, that many of the race are contented with these enjoyments, and consider it painful to be compelled to seek higher sources of gratification. But to the animal nature of man, have been added, by a bountiful Creator, moral sentiments and reflecting faculties, which not only place him above all other creatures on earth, but constitute him a different being from any of them, a rational and accountable creature. These faculties are his best and highest gifts, and the sources of his purest and intensest pleasures. They lead him directly to the great objects of his existence—obedience to God, and love towards his fellow-men. But this peculiarity attends them, that while his animal faculties act powerfully of themselves, his rational faculties require to be cultivated, exercised, and instructed, before they will yield their full harvest of enjoyment.

The Creator has so arranged the external world as to hold forth every possible inducement to man to cultivate his higher powers, nay almost to constrain him to do so. The philosophic mind, in surveying the world as prepared for the reception of the human race, perceives in external nature a vast assemblage of stupendous powers, too great for the feeble hand of man entirely to control, but kindly subjected within certain limits to the influence of his will. Man is introduced on earth, apparently helpless and unprovided for as a homeless stranger; but the soil on which he treads is endowed with a thousand capabilities of production, which require only to be excited by his intelligence to yield him the most ample returns. The impetuous torrent rolls its waters to the main; but as it dashes over the mountain-cliff, the human hand is capable of withdrawing it from its course, and rendering its powers subservient to his will. Ocean extends over half of the globe her liquid plain, in which no path appears, and the rude winds oft lift her waters to the sky; but there the skill of man may launch the strong knit bark, spread forth the canvass to the gale, and make the trackless deep a highway through the world. In such a state of things, knowledge is truly power; and it is highly important to human beings to become acquainted with the constitution

* The description in the text is extracted chiefly from "The Last Days of a Philosopher," by Sir Humphrey Davy, 1831. p. 134, on account of its popular style; but similar representations may be found in several recent works on Geology—particularly "A Geological Manual, by H. T. De La Beche;" the Penny Magazine of 1833, in a very instructive popular form; and Sedgwick's Discourse on the Studies of the University of Cambridge, third edition. Mr Lyell, however, in his Principles of Geology, vol. i. ch. ix., controverts the doctrine of a progressive developement of plants and animals.

and relations of every object around them, that they may discover its capabilities of ministering to their own advantage. Further, where these physical energies are too great to be controlled, man as received intelligence by which he may observe their course, and accommodate his conduct to their influence. This capacity of adaptation is a valuable substitute for the power of regulating them by his will. He cannot arrest the sun in its course, so as to avert the wintry storms, and cause perpetual spring to bloom around him; but by the proper exercise of his intelligence and corporeal energies, he is able to foresee the approach of bleak skies and rude winds, and to place himself in safety from their injurious effects. These powers of controlling nature, and of accommodating his conduct to its course, are the direct results of his rational faculties; and in proportion to their cultivation is his sway extended. Man, while ignorant, is in a helpless condition. But let him put forth his proper human capacities, and he then finds himself invested with the power to rear, to build, to fabricate, and to store up provisions; and by availing himself of these resources, and accommodating his conduct to the course of nature's laws, he is able to smile in safety beside the cheerful hearth, when the elements maintain their fiercest war abroad.

Again: We are surrounded by countless beings, inferior and equal to ourselves, whose qualities yield us the greatest happiness, or bring upon us the bitterest evil, according as we affect them agreeably or disagreeably by our conduct. To draw forth all their excellencies, and cause them to diffuse joy around us—to avoid touching the harsher springs of their constitution, and bringing painful discord to our ears—it is indispensably necessary that we know the nature of our fellows, and act with a habitual regard to the relations established by the Creator betwixt ourselves and them.

Man, ignorant and uncivilised, is a ferocious, sensual, and superstitious savage. The world affords some enjoyments to his animal feelings, but it confounds his moral and intellectual faculties. External nature exhibits to his mind a mighty chaos of events, and a dread display of power. The chain of causation appears too intricate to be unravelled, and the power too stupendous to be controlled. Order and beauty, indeed, occasionally gleam forth to his eye from detached portions of creation, and seem to promise happiness and joy; but more frequently, clouds and darkness brood over the scene, and disappoint his fondest expectations. Evil seems so mixed up with good, that he regards it as either its direct product or its inseparable accompaniment. Nature is never contemplated with a clear conception of its adaptation to the purpose of promoting the true enjoyment of the human race, or with a well-founded confidence in the wisdom and benevolence of its Author. Man, when civilised and illuminated by knowledge, on the other hand, discovers in the objects and occurrences around him, a scheme beautifully arranged for the gratification of his whole powers, animal, moral, and intellectual; he recognises in himself the intelligent and accountable subject of an all-bountiful Creator, and in joy and gladness desires to study the Creator's works, to ascertain his laws, and to yield to them a steady and a willing obedience. Without undervaluing the pleasures of his animal nature, he tastes the higher, more refined, and more enduring delights of his moral and intellectual capacities, and he then calls aloud for Education as indispensable to the full enjoyment of his rational powers.

If this representation of the condition of the human being on earth be correct, we perceive clearly the unspeakable advantage of applying our minds to gain knowledge of our own constitution and that of external nature, and of regulating our conduct according to rules drawn from the information acquired. Our constitution and our position equally imply, that the grand object of our existence is, not that we should remain contented with the pleasures of mere animal life, but that we should take the dignified and far more delightful station of moral and rational occupants of this lower world.

If the physical history of the globe clearly indicates progression in an advancing series of changes, the civil history of man equally proclaims the march, although often vacillating and slow, of moral and intellectual improvement. To avoid too extensive an inquiry, unsuitable to an introductory discourse, let us confine our attention to the aspects presented by society in our native country.

At the time of the Roman invasion, the inhabitants of Britain lived as savages, and appeared in painted skins. After the Norman conquest, one part of the nation was placed in the condition of serfs, and condemned to labour like beasts of burden, while another devoted themselves to war. They fought battles during the day, and in the night probably dreamed of bloodshed and broils. Next came the age of chivalry. These generations severally believed their own condition to be the permanent and inevitable lot of man. Now, however, have come the present arrangements of society, in which millions of men are shut up in cotton and other manufactories for ten or twelve hours a-day; others labour under ground in mines; others plough the fields; while thousands of higher rank pass their whole lives in idleness and dissipation. The elementary principles, both of mind and body, were the same in our painted ancestors, in their chivalrous descendants, and in us, their shopkeeping, manufacturing, and money-gathering children. Yet how different the external circumstances of the individuals of these several generations! If, in the savage state, the internal faculties of man were in harmony among themselves, and if his external condition was in accordance with them, he must then have enjoyed all the happiness that his nature admitted of, and must have erred when he changed; —if the institutions and customs of the age of chivalry were calculated to gratify his whole nature harmoniously, he must have been unhappy as a savage, and must be miserable now; if his present condition be the perfection of his nature, he must have been far from enjoyment, both as a savage and as a feudal warrior; and if none of these conditions have been in accordance with his constitution, he must still have his happiness to seek. Every age, accordingly, has testified that *it* was not in possession of contentment; and the question presents itself, if human nature has received a definite constitution, and if one arrangement of external circumstances be more suited to yield it gratification than another, what *are* that constitution and that arrangement? No one among the philosophers has succeeded in informing us. If we in Britain have not reached the limits of attainable perfection, what are we next to attempt? Are we and our posterity to spin and weave, build ships, and speculate in commerce, as the highest occupations to which human nature can aspire, and persevere in these labours till the end of time? If not, who shall guide the helm in our future voyage on the ocean of existence? and by what chart of philosophy shall our steersman be directed? The British are here cited as a type of mankind at large; for in every age and every clime, similar races have been run, and with similar conclusions. Only one answer can be returned to these inquiries. Man is evidently a progressive being; and the Creator, having designed a higher path for him than for the lower creatures, has given him intellect to discover his own nature and that of external objects, and left him, by the exercise of that intellect, to find out for himself the method of placing his faculties in harmony among themselves, and in accordance with the external world. Time and experience are necessary to accomplish these ends, and history exhibits the human race only in a state of progress towards the full developement of their powers, and the attainment of rational enjoyment.

As long as man remained ignorant of his own nature, he could not, of design, form his institutions in accordance with it. Until his own faculties became the subjects of his observation, and their relations the

objects of his reflection, they operated as mere instincts. He adopted savage habits, because his animal propensities were not at first directed by the moral sentiments, or enlightened by reflection. He next assumed the condition of the barbarian, because his higher powers had made some advance, but had not yet attained supremacy; and he now manufactures, because his constructive faculties and intellect have given him power over physical nature, while his avarice and ambition are predominant, and are gratified by such avocations. Not one of these changes, however, has been adopted from design, or from perception of his suitableness to the nature of man. He has been ill at ease in them all; but it does not follow that he shall continue for ever equally ignorant of his nature, and equally incapable of framing institutions to harmonise with it. The simple facts, that the Creator has bestowed on man reason, capable of discovering his own nature, and its relations to external objects; that He has left him to apply it in framing suitable institutions to ensure his happiness; that, nevertheless, man has hitherto been ignorant of his nature and of its relations; and that, in consequence, his modes of life have never been adopted from *enlightened views of his whole capacities and qualities*, but sprung up from the instinctive ascendancy of one blind propensity or another—warrant us in saying, that a new era will begin, when man shall be enabled to study his constitution and its relations with success; and that the future may exhibit him assuming his station as a rational creature, pursuing his own happiness with intelligence and design, and at length attaining to higher gratification of his whole faculties than any which he has hitherto enjoyed.

The inquiry next naturally occurs, What has been the cause of the human race remaining for so many ages unacquainted with their own nature and its relations? The answer is, that, before the discovery of the functions of the brain, they did not know how to study these subjects in a manner calculated to attain to true principles and practical results. The philosophy of man was cultivated as a speculative and not as an inductive science; and even when attempts were made at induction, the manner in which they were conducted was at variance with the fundamental requisites of a sound philosophy.* In consequence, even the most enlightened nations have never possessed any true philosophy of mind, but have been bewildered amidst innumerable contradictory theories.

This deplorable condition of the philosophy of human nature is strikingly and eloquently described by Mons. de Bonald, in a sentence translated by Mr Dugald Stewart, in his Preliminary Dissertation to the Encyclopædia Britannica. "Diversity of doctrine," says he, "has increased from age to age, with the number of masters, and with the progress of knowledge; and Europe, which at present possesses libraries filled with philosophical works, and which reckons up almost as many philosophers as writers; poor in the midst of so much wealth, and uncertain, with the aid of all its guides, which road it should follow; Europe, the centre and focus of all the lights of the world, has yet its *philosophy* only in expectation."

In our own country, two views of the constitution of the world and of human nature have long been prevalent, differing widely from each other, and which, if legitimately followed out, would lead to distinct practical results. The one is, that the world, including both the physical and moral departments, contains within itself the elements of improvement, which time will evolve and bring to maturity; it having been constituted by the Creator on the principle of a progressive system, like the acorn in reference to the oak. This hypothesis ascribes to the power and wisdom of the Divine Being the whole phenomena which nature, animate and inanimate, exhibits; because, in conferring on each part the specific qualities and constitution which belong to it, and in placing it in the circumstances in which it is found, He is assumed to have designed, from the first, the whole results which these qualities, constitution, and circumstances, are calculated in time to produce. There is no countenance given to atheism by this theory. On the contrary, it affords the richest and most comprehensive field imaginable for tracing the evidence of Divine power, wisdom, and goodness in creation.

The other hypothesis is, that the world was perfect at first, but fell into derangement, continues in disorder, and does not contain within itself the elements of its own rectification.

If the former view be sound, the first object of man, as an intelligent being in quest of happiness, must be to study the elements of external nature and their capabilities; the elementary qualities of his own nature, and their applications; and the relationship between these. His second object will be to discover and carry into effect the conditions—physical, moral, and intellectual—which, in virtue of this constitution, require to be realised before the fullest enjoyment of which he is capable can be attained.

According to the second view of creation, no good can be expected from the evolution of nature's elements, these being all essentially disordered; and human improvement and enjoyment must be derived chiefly from spiritual influences. If the one hypothesis be sound, man must fulfil the *natural conditions* requisite to the existence of religion, morality, and happiness, *before* he can reap full benefit from religious truth: according to the other, he must believe aright in religion, and be the subject of spiritual influences independent of natural causes, before he can become capable of any virtue or enjoyment; in short, according to it, science, philosophy, and all arrangements of the physical, moral, and intellectual elements of nature, are subordinate in their effects on human happiness on earth, to religious faith.

It appears to me extremely difficult to reconcile these conflicting views.

The theologians who condemned the natural world, lived in an age when there was no sound philosophy, and almost no knowledge of physical science; they were unavoidably ignorant of the elementary qualities of human nature, and of the influence of organisation on the mental powers—the great link which connects the moral and physical worlds. They were unacquainted with the relations subsisting between the mind and external nature; and could not by possibility divine to what extent individuals and society were capable of being improved by natural means. In the history of man, they had read chiefly of misery and crime, and had in their own age beheld much of both. They were, therefore, naturally led to form a low estimate of human nature, and to expect little good from the developement of its inherent capabilities. These views appear to me to have influenced the interpretations of Scripture which they adopted: and these, having once been entwined with religious sentiments, have descended from generation to generation: in consequence, persons of sincere piety have for several centuries been induced to look down on this world as a wilderness, abounding with briars, weeds, and noxious things—and to direct their chief attention, not to the study of its elements and their relations, in the hope of reducing them to order, but to enduring the disorder with patience and resignation, and to securing, by faith and penitence, salvation in a future life. It has never been with them a practical principle, that human nature itself may be vastly improved in its moral and intellectual capacities, by those means which Physiology and Phrenology have recently opened up to us; or that human nature and the external world are adjusted on the principle of favouring the developement of the higher powers of our minds; or that the study of the constitution of nature is indispensable to human improvement; or that this world and its professions and pursuits might be rendered favourable to virtue, by searching out the natural qualities of its elements, their relationship, and the moral plan on which God has constituted and

* See System of Phrenology, third edition, p. 40.

governs it. Some philosophers and divines having failed to discover a consistent order or plan in the moral world, have rashly concluded that none such exists, or that it is inscrutable. It appears never to have occurred to them that it is impossible to comprehend a whole system without becoming acquainted with its parts:—though ignorant of the physiology of man, of mental philosophy, of the philosophy of external nature, and of their relations, these authors have not perceived that this extensive ignorance of the details rendered it impossible for them to comprehend the plan of the whole. Hence they have involved themselves in contradictions; for while it has been a leading principle with them, that enjoyment in a future state is to be the consequence of the believer attaining to a holy and pious frame of mind in this life, they have represented the constitution of the world to be so unfavourable to piety and virtue, that men in general, who continue attached to it, cannot attain to this right frame of spirit, or act habitually in consistency with it. They have not had philosophy sufficient to enable them to perceive that man must live in society to be either virtuous, useful, or happy; that the social atmosphere is to the mind what air is to the lungs; and that, while an individual cannot exist to virtuous ends out of society, he cannot exist in a right frame of mind in it, if the moral atmosphere with which he is surrounded be deeply contaminated with vice and error. Individual merchants, for example, cannot act habitually on Christian principles, if the maxims of their trade be not Christian; and if the world be so unfavourably constituted that it does not admit of the rules of trade becoming Christian, then active life and practical religion are naturally opposed to each other. Divines have laboriously recommended spiritual exercises as means of improvement in this life, and of salvation in the next; but have rarely dealt with the philosophy of this world, or attempted its rectification, so as to render these exercises truly efficacious. Their minds have been infected with the first great error, that this world is irremediably defective in its constitution, and that human hope must be concentrated chiefly on the next. This may be attributed to the premature formation of a system of theology in the dawn of civilisation, before the qualities of the physical world, and the elements of the moral world, and their relationship, were known; and to erroneous interpretations of Scripture, in consequence, partly, of that ignorance.

Now, if the discovery of the philosophy of mind, founded on the physiology of the brain, is to operate at all in favour of human improvement, one of the most striking effects which it will produce, will be the lifting up of the veil which has so long concealed the natural world, and its capabilities and importance, from the eyes of divines. To all practical ends connected with theology, the philosophy of nature might as well not exist: With few exceptions, the sermons preached a century ago are equal, if not superior, in sense and suitableness to human nature, to those delivered yesterday; and yet, in the interval, the human mind has made vast advances in knowledge of the works of creation. Divines have frequently applied scientific discoveries in proving the existence and developing the character of the Deity; but they have failed in applying either the discoveries themselves, or the knowledge of the Divine character obtained by means of them, to the construction of any system of mental philosophy, capable of combining harmoniously with religion, and promoting the improvement of the human race.

This, however, Phrenology will enable them one day to do. In surveying the world itself, the phrenologist perceives that the Creator has bestowed definite qualities on the human mind, and on external objects, and established certain relations between them; that the mental faculties have been incessantly operating according to their inherent tendencies, generally aiming at good, always desiring it, but often missing it through pure ignorance and blindness, yet capable of attaining it when enlightened and properly directed. The baneful effects of ignorance are every where apparent. Three-fourths of the mental faculties have direct reference to this world, and in their functions appear to have no intelligible relation to another—such are Amativeness, Philoprogenitiveness, Combativeness, Destructiveness, Constructiveness, Acquisitiveness, Secretiveness, and others; while the remaining fourth are calculated to have reference at once to this life and to a higher state of existence—such are Benevolence, Ideality, Wonder, Veneration, Hope, Conscientiousness, and Intellect. While the philosophy of mind continued a purely abstract theory, moralists and divines enjoyed an unlimited privilege, of which they largely availed themselves, of ascribing or denying to human nature whatever qualities best suited their several systems; but now the case is different. Organs cannot be added to or displaced from the brain by the fancy or the logic of contending disputants or sects; and philosophers and divines must hereafter study human nature as it exists, and accommodate their views to its actual qualities and relations. To guide and successfully apply the former class of faculties to the promotion of human happiness, it appears indispensable that the faculties themselves—the physical conditions on which their strength and weakness, inertness and vivacity, depend—the relations established between them and the external world, which is the grand theatre of their action—and, finally, the relation between them and the superior faculties, which are destined to direct them, should be known; and yet, scarcely any thing *is* known in a philosophical and practical sense, on these points, by the people at large. If I am correct in saying that these faculties, by their constitution, have reference to this world alone, then useful knowledge for their guidance will be afforded by the philosophy of this world; and the wisdom which is to reduce them to order, will receive important aid from studying the constitution which it has pleased the Creator to bestow on them, and the relations which he has seen proper to institute between them and the other departments of his works. His wisdom and goodness will be found to pervade them. He has bestowed on us intellect to discover his will, and sentiments disposing us to obey it, in whatever record its existence is inscribed; yet little of this knowledge is taught to the people by divines.

Knowledge of the constitution, relations, and capabilities of sublunary things and beings, is indispensable also to the proper exercise and direction of the superior powers of the mind. In all ages, practical men have been engaged for three-fourths of their time in pursuits calculated to gratify the faculties which have reference to this world alone; but, unfortunately, the remaining fourth of their time has not been devoted to pursuits bearing reference to their higher faculties. Through want of intellectual education, they have been incapable of deriving pleasure from observing nature, and have not been furnished with ideas to enable them to think. Owing to the barbarism which pervaded society in general, there has been no moral atmosphere in which their superior sentiments could play. Ambition, that powerful stimulant in social life, has not been directed to moral objects, but generally the reverse. The hours, therefore, which ought to have been dedicated to the improvement of the higher portion of their faculties, were either devoted to the pursuit of gain, sensual pleasure, or ambition, or spent in mere trifling amusements and relaxation. There was no decided onward purpose of moral and intellectual advancement abroad in the secular occupations of society; and the divines who formed public opinion, so far from discovering that this disorder was not inherent in the constitution of nature—and that Christianity, in teaching the doctrine of the supremacy of the moral faculties, necessarily implied the practicability of a state of society founded on that principle—fell into the opposite error, and represented the world as deranged in all its parts, and incapable of rectification by the developement of its own elements; and

thereby added strength and permanence to the evils originating in ignorance and unguided passion.

I am far from casting blame on the individuals who fell into these mistakes: such errors were inevitable at the time in which they lived, and with the lights which they possessed; but I point them out as imperfections which ought to be removed.

The late Earl of Bridgewater died in February 1829, and left the sum of L.8000, which, by his will, he directed the President of the Royal Society of London to apply in paying any person or persons to be selected by him, "to write, print, and publish one thousand copies of a work 'On the Power, Wisdom, and Goodness of God, as manifested in the Creation;' illustrating such work by all reasonable arguments, as, for instance, the variety and formation of God's creatures in the animal, vegetable, and mineral kingdoms; the effect of digestion, and thereby of conversion; the construction of the hand of man, and an infinite variety of other arguments; as also by *discoveries, ancient and modern, in arts, sciences, and the whole extent of literature.*" The President of the Royal Society called in the aid of the Archbishop of Canterbury and of the Bishop of London, and with their advice nominated eight gentlemen to write eight treatises on different branches of this great subject.

One of the objects of the Earl of Bridgewater appears to have been to ascertain what the character of external nature and the capacities of the human mind really are, and what is the adaptation of the latter to the external world; questions of vast importance in themselves, and which can be solved only by direct, bold, and unbiassed appeals to Nature herself. This subject was committed to Dr Chalmers.

The first inquiry that ought naturally to have been pursued in the execution of this object was, "What is the constitution of the human mind?" because, before we can successfully trace the adaptation of two objects to each other, we must be acquainted with each itself. But Dr Chalmers and all the other authors of the Bridgewater Treatises have neglected this branch of inquiry. They disdained to acknowledge Phrenology as the philosophy of mind, yet have not brought forward any other system. Indeed, they have not attempted to assign to human nature any definite or intelligible constitution. In consequence, they appear to me to have thrown extremely little new light on the moral government of the world.

In the following work, the first edition of which was published in 1828, before the Earl of Bridgewater's death, I have endeavoured to avoid this inconsistency. Having been convinced, after minute and long-continued observation, that Phrenology is the true philosophy of mind, I have assumed it as the basis of my reasoning. In this inquiry, it is indispensably necessary to found on some system of mental philosophy, in order to obtain one of the elements of the comparison; but the reader, if he chooses, may regard the phrenological views as hypothetical in the meantime, and judge of them by the result. Or he may attempt to substitute in their place any better system with which he is acquainted, and try how far it will successfully conduct him.

In the next place, in instituting the comparison in question, I have brought into view, and endeavoured to substantiate and apply, a doctrine, which, as far as I have yet been able to discover, is the key to the true theory of the divine government of the world, but which has not hitherto been duly appreciated—namely, THE INDEPENDENT EXISTENCE AND OPERATION OF THE NATURAL LAWS OF CREATION. The natural laws may be divided into three great and intellectual classes —Physical, Organic, and Moral; and the peculiarity of the new doctrine is, its inculcating that these operate *independently of each other;* that each requires obedience to itself; that each, in its own specific way, rewards obedience and punishes disobedience; and that human beings are happy in proportion to the extent to which they place themselves in accordance with *all* of these divine institutions. For example, the most pious and benevolent missionaries sailing to civilise and christianise the heathen, may, if they embark in an unsound ship, be drowned by disobeying a physical law, without their destruction being averted by their morality. On the other hand, if the greatest monsters of iniquity were embarked in a staunch and strong ship, and managed it well, they might, and, on the general principles of the government of the world, they would, escape drowning in circumstances exactly similar to those which would send the missionaries to the bottom. There appears something inscrutable in these results, if only the *moral qualities* of the men be contemplated; but if the principle be adopted that ships float in virtue of a purely physical law—and that the physical and moral laws operate independently, each in its own sphere—the consequences appear in a totally different light.

In like manner, the *organic* laws operate independently; and hence, one individual who has inherited a fine bodily constitution from his parents, and observes the rules of temperance and exercise, will enjoy robust health, although he may cheat, lie, blaspheme, and destroy his fellow-men; while another, if he have inherited a feeble constitution, and disregard the laws of diet and exercise, will suffer pain and sickness, although he may be a paragon of every Christian virtue. These results are frequently observed to occur in the world; and on such occasions the darkness and inscrutable perplexity of the ways of Providence are generally moralised upon, or a future life is called in as the scene in which these crooked paths are to be rendered straight. But if my views be correct, the Divine wisdom and goodness are abundantly conspicuous in these events; for by this distinct operation of the organic and moral laws, order is preserved in creation, and, as will afterwards be shown, the means of discipline and improvement are afforded to all the human faculties.

The *moral and intellectual* laws also have an independent operation. The man who cultivates his intellect, and habitually obeys the precepts of Christianity, will enjoy within himself a fountain of *moral and intellectual happiness*, which is the appropriate reward of that obedience. By these means he will be rendered more capable of studying, comprehending, and obeying, the physical and organic laws, of placing himself in harmony with the whole order of creation, and of attaining the highest degree of perfection, and reaping the highest degree of happiness, of which human nature in this world is susceptible. In short, whenever we apply the principle of the *independent operation* of the natural laws, the apparent confusion of the moral government of the world disappears.

These views will be better understood and appreciated after perusing the subsequent chapters, the object of which is to unfold and apply them; the aim of these introductory remarks being merely to prepare the reader for travelling over the more abstruse portions of the work with a clearer perception of their scope and tendency. The work itself has now been before the public for seven years, and I have seen no criticism which has shaken my conviction of the substantial truth of the principles maintained in it. Of its value as a contribution to the philosophy of human nature, the public are the only legitimate judges.

Some well-meaning individuals have imagined that this work is hostile to religion, because it is confined to principles which can be discovered by observation and reflection, and to human conduct in this life without direct reference to a future state; but such ideas are entirely unfounded. Human nature and the external world have both proceeded from the Creator, and it is impossible, in interpreting their constitution aright, to arrive at any conclusions at variance with correct interpretations of Scripture. It is argued, indeed, by some theologians, that the human faculties are no longer in the condition in which they were created, and that hence no sound philosophy can be deduced from studying their manifestations. (Christian Ethics, by Ralph Wardlaw, D. D., p. 40.) Ire-

spectfully reply, that man did not make the cerebral organs which he now possesses, nor bestow on them their functions. Both organs and functions are as assuredly the direct gifts of the Creator, as is the eye, the ear, or the stomach. The science of optics is never questioned by any person who understands it, on the ground that the eye (on the structure, properties, and relations of which it depends) is not now in the condition in which it was created. Yet to do this would be as reasonable as to deny the truth and authority of a philosophy of mind derived from correct observations on the constitution and relations of the mental faculties and organs. It is presumable that the same Divine power, wisdom, and goodness, which instituted the eye, and adapted its structure to light, presided also over the institution and adaptations of the internal organs of the mind. If a theologian were to maintain that these organs, or several of them, were bestowed on man in consequence of sin, or from any other cause, philosophers would remain silent to such a proposition; because they do not inquire into the motives which induced the Creator to confer on man the organs and faculties which he possesses. They limit their investigations to objects that exist, and their relations and uses. But on the ground that organs and faculties have been given by the Creator, they are entitled to maintain, that a philosophy of morals correctly deduced from their constitution must accord with all correct interpretations of Scripture, otherwise religion can have no substantial foundation. If two sound interpretations of the divine will, as recorded in Creation and in Scripture, can by possibility contradict each other, we can have no confidence in the moral Governor of the world. As, then, all real philosophy and all true religion must harmonise, there will be a manifest advantage in cultivating each by itself, till its full dimensions, limits, and applications shall be brought clearly to light. We may then advantageously compare them, and use the one as a means of elucidating or correcting our views of the other.

To the best of my knowledge, there is not one practical result of the natural laws expounded in the subsequent pages, which does not harmonise precisely with the moral precepts of the New Testament. Indeed, this work has been characterised by some individuals as the philosophy of Christian morality, because they regard it as exhibiting the natural foundations of the admirable precepts which in the New Testament are taught only dogmatically. It is objected, however, that, by omitting the sanction of future reward and punishment, this treatise leaves out the highest, best, and most efficacious class of motives to virtuous conduct. This objection is founded on a misapprehension of the object of the book. It is my purpose to show, that the rewards and punishments of human actions are infinitely more complete, certain, and efficacious, in this life, than is generally believed; but by no means to interfere with the sanctions to virtue afforded by the prospect of future retribution. It appears to me that every action which is morally wrong in reference to a future life, is equally wrong and inexpedient with relation to this world; and that it is of essential advantage to virtue to prove this to be the case. Having observed a great tendency in many religious men to overlook the importance of understanding the moral administration of this world, and to turn their attention too exclusively to the next, I have endeavoured to present the administration of the present world in a clear light, calculated to arrest attention, and to draw towards it that degree of consideration to which it is justly entitled. This proceeding will be recognised as the more necessary, if one principle largely insisted on in the following pages shall be admitted to be sound, viz. that religion operates on the human mind, in subordination, and not in contradiction, to its natural constitution. If this view be well founded, it will be indispensable that all the *natural conditions* required by the human constitution as preliminaries to moral and religious conduct be complied with, *before* any purely religious teaching can produce its full effects. If, for example, an ill-constituted brain be unfavourable to the appreciation and practice of religious truth, it is not an unimportant inquiry, whether any, and what, influence can be exercised by human means in improving the mental organs. If certain physical circumstances and occupations—such as insufficient food and clothing, unwholesome workshops and dwelling-places, diet, and severe and long-protracted labour—have a natural tendency to blunt all the higher feelings and faculties of the mind, in consequence of their influence on the nervous system in general, and the brain in particular—and if religious emotions cannot be experienced with full effect by individuals so situate—the ascertainment, with a view to removal, of the nature, causes, and effects of these impediments to holiness, is not a matter of indifference. This view has not been systematically adopted and pursued by the religious instructors of mankind in any age, or any country, and, in my humble opinion, for this sole reason, that the state of moral and physical science did not enable them either to appreciate its importance, or to carry it into effect. By presenting Nature in all her simplicity and strength, a new impulse and direction may perhaps be given to their understandings; and they may be induced to consider whether their universally confessed failure to render men as virtuous and happy as they desired, may not to some extent have arisen from their non-fulfilment of the natural conditions instituted by the Creator as preliminaries to success. They have complained of war waged, openly or secretly, by philosophy against religion; but they have not duly considered whether religion itself warrants them in treating philosophy and all its dictates with neglect in their instruction of the people. True philosophy is a revelation of the Divine Will manifested in creation; it harmonises with all truth, and cannot with impunity be neglected.

CHAPTER I.

ON NATURAL LAWS.

Man's faculties capable of ascertaining what exists, and the purpose of what exists, but not the will of the Deity in creation—All the departments of Nature act upon definite constitutions and fixed laws, imposed by the Deity—The term *law* defined and illustrated—Man's pleasure and pain depend, in this world, upon observance of and obedience to these constitutions and laws; an opinion supported by Bishop Butler—The Natural Laws divided into Physical, Organic, and Moral, and obedience or disobedience to each asserted to have distinct effects; while the whole are universal, invariable, unbending, and in harmony with the entire constitution of man—Death in certain circumstances appears desirable—Full and universal obedience not supposed to lead to perfect happiness on earth, or to interfere with the prospects of futurity—Benevolence not the exclusive, or immediate, but the ultimate principle on which the world is arranged; evil in no case the ultimate, but only in certain instances the immediate, principle, and that for wise and benevolent ends—The will of the Deity in designing evil inscrutable, but the mental constitution shown by Phrenology to bear relation to it.

In natural science, three subjects of inquiry may be distinguished: 1*st*, What exists? 2*dly*, What is the purpose or design of what exists? and, 3*dly*, Why was what exists designed for such uses as it evidently subserves?

It is matter of fact, for instance, that arctic regions and the torrid zone exist—that a certain kind of moss is abundant in Lapland in winter—that the rein-deer feeds on it, and enjoys health and vigour in situations where most other animals would die; that camels exist in Africa—that they have broad hooves, and stomachs fitted to retain water for a considerable time—and that they flourish amid arid tracts of sand, where the rein-deer would hardly live for a day. All this falls under the inquiry, What exists?

In contemplating these facts, the understanding is

naturally led to infer that one object of the Lapland moss is to feed the rein-deer, and that one purpose of the deer is to assist man; and that broad feet have been given to the camel to allow it to walk on sand, and a retentive stomach, to fit it for arid places in which water is found only at wide intervals. These conclusions result from inquiries into the uses or purposes of what exists; and such inquiries constitute a legitimate exercise of the human intellect.

But, 3*dly*, we may ask, Why were the physical elements of nature created such as they are? Why were summer, autumn, spring, and winter introduced? Why were animals formed of organised matter? Why were trackless wastes of snow and burning sand called into existence? These are inquiries why what exists was made such as it is, or into the will of the Deity in creation.

Now, man's perceptive faculties are adequate to the first inquiry, and his reflective faculties to the second; but it may well be doubted whether he has powers suited to the third. My investigations are confined to the first and second, and I do not discuss the third.

It cannot be too much insisted on, that the Creator has bestowed definite constitutions on physical nature and on man and animals, and that they are regulated by fixed laws. A *law*, in the common acceptation, denotes a rule of action; it implies a subject which acts, and that the actions or phenomena which that subject exhibits take place in an established and regular manner; and this is the sense in which I shall use it, when treating of physical substances and beings. Water, for instance, when at the level of the sea, and combined with that portion of heat indicated by 32° of Fahrenheit's thermometer, freezes or becomes solid; when combined with the portion denoted by 212° of that instrument, it rises into vapour or steam. Here water and heat are the substances, and the freezing and rising in vapour are the appearances or phenomena presented by them; and when we say that these take place according to a Law of Nature, we mean only that these modes of action appear, to our intellects, to be established in the very constitution of the water and heat, and in their natural relationship to each other; and that the processes of freezing and rising in vapour are constant appearances, when they are combined in these proportions, other conditions being the same.

The ideas chiefly to be kept in view are, 1*st*, That all substances and beings have received a definite natural constitution; 2*dly*, That every mode of action, which is said to take place according to a natural law, is inherent in the constitution of the substance or being; and, 3*dly*, That the mode of action described is universal and invariable, wherever and whenever the substances or beings are found in the same condition. For example, water, at the level of the sea, freezes and boils at the same temperature, in China, in France, in Peru, and in England; and there is no exception to the regularity with which it exhibits these appearances, when all its other conditions are the same. This last qualification, however, must constantly be attended to in all departments of science. If water be carried to the top of a mountain 20,000 feet high, it will boil at a lower temperature than 212°; but this depends on its relationship to the air, and takes place also according to fixed and invariable principles. The air exerts a great pressure on water. At the level of the sea the pressure is every where nearly the same, and in that situation the freezing and boiling points correspond all over the world; but on the top of a high mountain the pressure is much less, and the vapour, not being held down by so great a power of resistance, rises at a lower temperature than 212°. But this change of appearances does not indicate a change in the constitution of the water and the heat, but only a variation in the circumstances in which they are placed; and hence it is not correct to say, that water boiling on the tops of high mountains, at a lower temperature than 212°, is an exception to the general law of nature. There are no exceptions to the laws of nature; for the Creator is too wise and too powerful to make imperfect or inconsistent arrangements. The error is in the human mind inferring the law to be, that water boils at 212° in every altitude; when the real law is only that it boils at that temperature, *at the level of the sea*, in all countries—and that it boils at a lower temperature the higher it is carried, because then the pressure of the atmosphere is less.

Intelligent beings are capable of observing nature and of modifying their actions. By means of their faculties, the laws impressed by the Creator on physical substances become known to them; and, when perceived, constitute laws to them, by which to regulate their conduct. For example, it is a physical law, that boiling water destroys the muscular and nervous systems of man. This is the result purely of the constitution of the body, and the relation between it and heat; and man cannot alter or suspend the law. But whenever the relation, and the consequences of disregarding it, are perceived, the mind is prompted to avoid infringement, in order to shun the torture attached by the Creator to the decomposition of the human body by heat.

Similar views have long been taught by philosophers and divines. Bishop BUTLER, in particular, says:—"An Author of Nature being supposed, it is not so much a deduction of reason as a matter of experience, that we are thus under his government: under his government in the same sense as we are under the government of civil magistrates. Because the annexing pleasure to some actions, and pain to others, in our power to do or forbear, and giving notice of this appointment beforehand to those whom it concerns, *is the proper formal notion of government*. Whether the pleasure or pain which thus follows upon our behaviour be owing to the Author of Nature's acting upon us every moment which we feel it, or to his having at once contrived and executed his own part in the plan of the world, makes no alteration as to the matter before us. For, if civil magistrates could make the sanctions of their laws take place, without interposing at all after they had passed them, without a trial and the formalities of an execution; if they were able to make their laws execute themselves, or every offender to execute them upon himself, we should be just in the same sense under their government then as we are now; but in a much higher degree and more perfect manner. Vain is the ridicule with which one foresees some persons will divert themselves, upon finding lesser pains considered as instances of divine punishment. There is no possibility of answering or evading the general thing here intended, without denying all final causes. For, final causes being admitted, the pleasures and pains now mentioned must be admitted too, as instances of them. And if they are, if God annexes delight to some actions and uneasiness to others, with an apparent design to induce us to act so and so, then he not only dispenses happiness and misery, but also rewards and punishes actions. If, for example, the pain which we feel upon doing what tends to the destruction of our bodies, suppose upon too near approaches to fire, or upon wounding ourselves, be appointed by the Author of Nature to prevent our doing what thus tends to our destruction; this is altogether as much an instance of his punishing our actions, and consequently of our being under his government, as declaring, by a voice from heaven, that if we acted so, he would inflict such pain upon us, and inflicting it whether it be greater or less."*

If, then, the reader keep in view that God is the creator; that Nature, in the general sense, means the world which he has made—and, in a more limited sense, the particular constitution which he has bestowed on any special object, of which we may be treating;—and that a Law of Nature means the established mode in which the actions and phenomena of any creature or object exhibit themselves, and the obligation thereby imposed on intelligent beings to

* Butler's Works, vol. i. p. 44. The remarks of other authors on the Laws of Nature will be found in the Appendix, No. I.

attend to it—he will be in no danger of misunderstanding my meaning.

Every natural object has received a definite constitution, in virtue of which it acts in a particular way. There must, therefore, be as many natural laws, as there are distinct modes of action of substances and beings, viewed by themselves. But substances and beings stand in certain relations to each other, and modify each other's action, in an established and definite manner, according to that relationship; altitude, for instance, modifies the effect of heat upon water. There must, therefore, be also as many laws of nature as there are *relations* between different substances and beings.

It is impossible, in the present state of knowledge, to elucidate all these laws: numberless years may elapse before they shall be discovered; but we may investigate some of the most familiar and striking of them. Those that most readily present themselves bear reference to the great classes into which the objects around us may be divided, namely, Physical, Organic, and Intelligent. I shall therefore confine myself to the physical laws, the organic laws, and the laws which characterise intelligent beings.

1*st*, The Physical Laws embrace all the phenomena of mere matter: a heavy body, for instance, when unsupported, falls to the ground with a certain accelerating force, in proportion to the distance which it falls, and its own density; and this motion is said to take place according to the law of gravitation. An acid applied to a vegetable blue colour, converts it into red, and this is said to take place according to a chemical law.

2*dly*, Organised substances and beings stand higher in the scale of creation, and have properties peculiar to themselves. They act, and are acted upon, in conformity with their constitution, and are therefore said to be subject to a peculiar set of laws, termed the Organic. The distinguishing characteristic of this class of objects is, that the individuals of them derive their existence from other organised beings, are nourished by food, and go through a regular process of growth and decay. Vegetables and Animals are the two great subdivisions of it. The organic laws are different from the merely physical: a stone, for example, does not spring from a parent stone; it does not take food; it does not increase in vigour for a time, and then decay and suffer dissolution—all which processes characterise vegetables and animals.

The organic laws are superior to the merely physical. A living man, or animal, may be placed in an oven, along with the carcass of a dead animal, and remain exposed to a heat which will completely bake the dead flesh, and yet come out alive, and not seriously injured. The dead flesh is mere physical matter, and its decomposition by the heat instantly commences; but the living animal is able, by its organic qualities, to counteract and resist, to a certain extent, that influence. The Organic Laws, therefore, mean the established modes according to which all phenomena connected with the production, health, growth, decay, and death, of vegetables and animals, take place. In the case of each animal or vegetable of the same kind, their action is always the same, in the same circumstances. Animals are the chief objects of my present observations.

3*dly*, Intelligent beings stand yet higher in the scale than merely organised matter, and embrace all animals that have distinct consciousness, from the lowest of the inferior creatures up to man. The two great divisions of this class are *Intelligent and Animal*—and *Intelligent and Moral* creatures. The dog, horse, and elephant, for instance, belong to the former class, because they possess some degree of intelligence, and certain animal propensities, but no moral feelings; man belongs to the second, because he possesses all the three. These various faculties have received a definite constitution, and stand in determinate relationship to external objects: for example, a healthy palate cannot feel wormwood sweet, nor sugar bitter; a healthy eye cannot see a rod partly plunged in water straight—because the water so modifies the rays of light, as to give to the stick the appearance of being crooked; a healthy sentiment of Benevolence cannot feel gratified with murder, nor a healthy Conscientiousness with fraud. As, therefore, the mental faculties have received a precise constitution, have been placed in fixed and definite relations to external objects, and act regularly;—we speak of their acting according to rules or laws, and call these the Moral and Intellectual Laws.

Several important principles strike us very early in attending to the natural laws, viz. 1*st*, Their independence of each other; 2*dly*, That obedience to each of them is attended with its own reward, and disobedience with its own punishment; 3*dly*, That they are universal, unbending, and invariable in their operation; 4*thly*, That they are in harmony with the constitution of man.

1. The *independence* of the natural laws may be illustrated thus:—A ship floats because a part of it being immersed displaces a weight of water equal to its whole weight, leaving the remaining portion above the fluid. A ship, therefore, will float on the surface of the water as long as these physical conditions are observed; no matter although the men in it should infringe other natural laws—as, for example, although they should rob, murder, blaspheme, and commit every species of debauchery: and it will sink whenever the physical conditions are subverted, however strictly the crew and passengers may obey the moral laws. In like manner, a man who swallows poison, which destroys the stomach or intestines, will die, just because an organic law has been infringed, and because it acts independently of others; although he should have taken the drug by mistake, or have been the most pious and charitable individual on earth. Or, thirdly, a man may cheat, lie, steal, tyrannise, and, in short, break a great variety of the moral laws, and nevertheless be fat and rubicund, if he sedulously observe the organic laws of temperance and exercise; while, on the other hand, an individual who neglects these, may pine in disease, and be racked with torturing pains, although at the very moment he may be devoting his mind to the highest duties of humanity.

2. *Obedience to each law is attended with its own reward, and disobedience with its own punishment.* Thus, the mariners who preserve their ship in accordance with the physical laws, reap the reward of sailing in safety; and those who permit a departure from them, are punished by the ship sinking. People who obey the moral law, enjoy the intense internal delights that spring from active moral faculties; they render themselves, moreover, objects of affection and esteem to moral and intelligent beings, who, in consequence, confer on them many other gratifications. Those who disobey that law, are tormented by insatiable desires, which, from the nature of things, cannot be gratified; they are punished by the perpetual craving of whatever portion of moral sentiment they possess, for higher enjoyments, which are never attained; and they are objects of dislike and malevolence to other beings of similar dispositions with themselves, who inflict on them the evils dictated by their own provoked propensities. Those who obey the organic laws, reap the reward of health and vigour of body, and buoyancy of mind; while those who break them are punished by sickness, feebleness, languor, and pain.

3. The natural laws are *universal, invariable, and unbending.* When the physical laws are infringed in China or Kamtschatka, there is no instance of a ship floating there more than in England; and when they are observed, there is no instance of a vessel sinking in any one of these countries more than another. There is no example of men, in any country, enjoying the mild and generous internal joys, and the outward esteem and love, that attend obedience to the moral law, while they give themselves up to the dominion of brutal propensities. There is no example, in any latitude or longitude, or in any age, of men

who entered life with a constitution in harmony with the organic laws, and who continued to obey these laws throughout, being, in consequence of this obedience, visited with pain and disease; and there are no instances of men who were born with constitutions marred by the organic laws, and who lived in habitual disobedience to them, enjoying that sound health and vigour of body that are the rewards of obedience.

4. The natural laws are *in harmony with the whole constitution of man*, the moral and intellectual powers holding the supremacy. If ships in general had sunk when they were staunch, strong, and skilfully managed, this would have outraged the perceptions of reason; but as they float, the physical law is, in this instance, in harmony with the moral and intellectual law. If men who rioted in drunkenness and debauchery had thereby established health and increased their happiness, this, again, would have been at variance with our intellectual and moral perceptions; but the opposite and actual result is in harmony with them.

It will be subsequently shown, that our moral sentiments desire universal happiness. If the physical and organic laws are constituted in harmony with them, it ought to follow that the natural laws, when obeyed, will conduce to the happiness of the moral and intelligent beings who are called on to observe them; and that the evil consequences, or punishments, resulting from infringement of them, will be calculated to enforce stricter obedience, for the advantage of those creatures themselves. According to this view, when a ship sinks, in consequence of a plank starting, the punishment is intended to impress upon the spectators the absolute necessity of having every plank secure and strong before going to sea, this being a condition indispensable to their safety. When sickness and pain follow a debauch, the object of the suffering is to urge a more scrupulous obedience to the organic laws, that the individual may escape premature death, which is the inevitable consequence of too great and continued disobedience to these laws—and enjoy health, which is the reward of the opposite conduct. When discontent, irritation, hatred, and other mental annoyances, arise out of infringement of the moral law, this punishment is calculated to induce the offender to return to obedience, that he may enjoy the rewards attached to it.

When the transgression of any natural law is excessive, and so great that return to obedience is impossible, one purpose of death, which then ensues, may be to deliver the individual from a continuation of the punishment which could then do him no good. Thus, when, from infringement of a physical law, a ship sinks at sea, and leaves men immersed in water, without the possibility of reaching land, their continued existence in that state would be one of cruel and protracted suffering; and it is advantageous to them to have their lives extinguished at once by drowning, thereby withdrawing them from further agony. In like manner, if a man in the vigour of life so far infringe any organic law as to destroy the function of a vital organ—the heart, for instance, or the lungs, or the brain—it is better for him to have his life cut short, and his pain put an end to, than to have it protracted under all the tortures of an organic existence, without lungs, without a heart, or without a brain, if such a state were possible, which, for this wise reason, it is not.

I do not intend to predicate any thing concerning the absolute perfectibility of man by obedience to the laws of nature. The system of sublunary creation, so far as we perceive it, does not appear to be one of optimism; yet benevolent design, in its constitution, is undeniable. Paley says, "Nothing remains but the supposition, that God, when he created the human species, wished them happiness, and made for them the provisions which he has made, with that view and for that purpose. The same argument may be proposed in different terms: Contrivance proves design; and the predominant tendency of the contrivance indicates the disposition of the designer. The world abounds with contrivances; and all the contrivances which we are acquainted with, are directed to beneficial purposes."—(Paley's Mor. Phil., Edin. 1816, p. 51.) Many of the contrivances of the Creator, for effecting beneficial purposes, have been discovered by philosophers; but, so far as I am aware, no one has adverted to the foregoing principles according to which these contrivances operate, so that nothing like a systematic view of the moral government of the world has hitherto been presented to mankind.

Neither do I intend to teach that the natural laws, discernible by unassisted reason, are sufficient for the *salvation* of man without revelation. Human interests regard this world and the next. To enjoy this world, I humbly maintain that man must discover and obey the natural laws. Revelation does not communicate complete information concerning the best mode of pursuing even our legitimate temporal interests; and numerous practical duties resulting from our constitution are discoverable, which are not treated of in detail in the inspired volume—the mode of preserving health, for example; of pursuing with success a temporal calling; of discovering the qualities of men with whom we mean to associate our interests; and so on. This is the case, probably because faculties have been given to man to discover arts, sciences, and the natural laws, and to adapt his conduct to them; and because the physical, moral, and intellectual nature of man, is itself left open to investigation by these faculties. My object, I repeat, is to investigate the natural constitution of the human body and mind, their relations to external objects and beings in this world, and the courses of action that, in consequence, appear to be beneficial or hurtful in this life.

Man's spiritual interests belong to the sphere of revelation; and I distinctly repeat, that I do not teach that obedience to the natural laws is sufficient for salvation in a future state. Revelation prescribes certain requisites for salvation, which may be divided into two classes—first, faith or belief; and, secondly, the performance of certain practical duties, not as entitling to salvation, but as the native result of that faith, and the necessary evidence of its sincerity. The natural laws form no guide as to faith: but, as far as I can perceive, their dictates and those of revelation coincide in all matters relating to practical duties in temporal affairs.

It may be asked, whether mere *knowledge* of the natural laws is sufficient to insure observance of them? Certainly not. Mere knowledge of music does not enable one to play on an instrument, nor of anatomy to perform skilfully a surgical operation. Practical training, and the aid of every motive that can interest the feelings, are necessary to lead individuals to obey the natural laws. Religion, in particular, may furnish motives highly conducive to this obedience. But it must never be forgotten, that although mere knowledge is not all-sufficient, it is a primary and indispensable requisite to regular observance; and that it is as impossible effectually and systematically to obey the natural laws without knowing them, as it is to perform any other complicated and important duty in ignorance of its principles and practical details. Some persons are of opinion that Christianity alone suffices, not only for man's salvation—which I do not dispute—but for his guidance in all practical virtues, without knowledge of, or obedience to, the laws of nature; but from this notion I respectfully dissent. It appears to me, that one reason why vice and misery do not diminish in proportion to preaching, is, that the natural laws are too much overlooked, and very rarely considered as having any relation to human conduct. The theological doctrine of the corruption and disorder of human nature, joined to the want of knowledge of real science, have probably been the causes why the professed servants of God have made so little use of his laws, as revealed in creation, in instructing the people to live according to his will. Before religion can yield its full practical fruits in this world, it must be wedded to a philosophy founded on those laws; it must borrow

light and strength from them, and in return communicate its powerful sanction in enforcing obedience to their dictates.

Connected with this subject, it is proper to state, that I do not maintain that the world is arranged on the principle of benevolence exclusively: my idea is, that it is constituted in harmony with the whole faculties of man; the moral sentiments and intellect holding the supremacy. What is meant by creation being constituted in harmony with the whole faculties of man, may be illustrated thus:—Suppose that we should see two men holding a third in a chair, and a fourth drawing a tooth from his head. While we contemplated this bare act, and knew nothing of the intention with which it was done, and of the consequences that would follow, we would set it down as purely cruel, and say, that, although it might accord with the propensity which prompts men to inflict pain and destroy, it could not harmonise with Benevolence. But when we are told that the individual in the chair was a patient and the operator a dentist, and that the object of all the parties was to deliver the first from violent torture, we would then perceive that an operation attended with pain had been used as a means to accomplish a benevolent purpose—or, in other words, that the operator had acted under the supremacy of moral sentiment and intellect—and we would approve of his conduct. If the world had been created on the principle of Benevolence exclusively, the toothache could not have existed; but, as pain does exist, a mental faculty, called by the phrenologists Destructiveness, has been given to place man in harmony with its existence, when used for a benevolent end.

To apply this illustration to the works of Providence, I humbly suggest it as probable, that, if we knew *thoroughly* the design and whole consequences of such institutions of the Creator as are attended with pain, including death itself, we should find that infliction is used as a *means*, subservient to Benevolence and Justice, to arrive at an end in harmony with the moral sentiments and intellect; in short, that no institution of the Creator has pure evil, or destruction alone, for its object. "In maturity of sense and understanding," says Lord Kames, "benevolence appears more and more; and beautiful final causes are discovered in many of nature's productions, that formerly were thought useless, or perhaps hurtful: and the time may come—we have solid ground to hope that it *will* come—when doubts and difficulties about the government of Providence will all of them be cleared up, and every event be found conducive to the general good."*

The opposite of this doctrine, viz. that there are institutions of the Creator which have suffering for their exclusive object, is clearly untenable; for this would be ascribing malevolence to the Deity. As, however, the existence of pain is undeniable, it is equally impossible to believe that the world is arranged on the principle of Benevolence exclusively. The view now presented makes no attempt to explain why pain or evil exists, because I consider this inquiry to surpass the limits of the human understanding. It offers an explanation, however, of the use which pain serves—that of enforcing obedience to the natural laws; and it shows that the human mind is constituted in harmony with this order of creation. Phrenology alone, of all systems of mental philosophy, admits faculties clearly related to difficulty, pain, and death, and thus enhances our perceptions of divine wisdom and goodness.

CHAPTER II.

ON THE CONSTITUTION OF MAN, AND ITS RELATIONS TO EXTERNAL OBJECTS.

The constitution of man, on the principle of a subjection of the whole to reflection and the higher sentiments, shown by Bishop Butler to be conformable to the constitution of the external world.—(1.) Man considered as a physical being, and the evils resulting from breach of the physical laws shown to be only exceptions from the benefits habitually flowing from those laws.—(2.) Man considered as an organised being, and the rules for the enjoyment of a sound body explained.—(3.) Man considered as an animal, moral, and intellectual being, and his mental constitution detailed.—(4.) The mental faculties compared with each other.—Their uses and abuses.—The propensities designed for good, when acting harmoniously with, and guided by, the higher sentiments and intellect; otherwise lead to evil.—True happiness of individuals and societies found ultimately to consist in a habitual exercise of the higher sentiments and intellect, with the propensities acting only as aids and means of gratification.—(5.) The faculties of man compared with external objects, and the means of their gratification specified.

LET us next consider the Constitution of Man, and the natural laws to which he is subjected, and endeavour to discover how far the external world is arranged with wisdom and benevolence in regard to him. Bishop BUTLER, in the Preface to his Sermons, says, "It is from considering the relations which the several appetites and passions in the inward frame have to each other, and, above all, the SUPREMACY of reflection or conscience, that we get the idea of the system or constitution of human nature. And from the idea itself it will as fully appear, that this our nature, *i. e.* constitution, is adapted to virtue, as from the idea of a watch it appears that its nature, *i. e.* constitution or system, is adapted to measure time.

"Mankind has various instincts and principles of action, as brute creatures have; some leading most directly and immediately to the good of the community, and some most directly to private good.

"Man has several which brutes have not; particularly reflection or conscience, an approbation of some principles or actions, and disapprobation of others.

"Brutes obey their instincts or principles of action, according to certain rules; suppose the constitution of their body, and the objects around them.

"The generality of mankind also obey their instincts and principles, all of them; those propensions we call good, as well as the bad, according to the same rules, namely, the constitution of their body, and the external circumstances which they are in.

"Brutes, in acting according to the rules before mentioned, their bodily constitution and circumstances, act suitably to *their whole nature.*

"Mankind also, in acting thus, would act suitably to their whole nature, if no more were to be said of man's nature than what has been now said; if that, as it is a true, were also a complete, adequate account of our nature.

"But that is not a complete account of man's nature. Somewhat further must be brought in to give us an adequate notion of it; namely, *that one of those principles of action, conscience, or reflection,* compared with the rest, as they all stand together in the nature of man, *plainly bears upon it marks of authority over all the rest, and claims the absolute direction of them all,* to allow or forbid their gratification;—a disapprobation on reflection being in itself a principle manifestly superior to a mere propension. And the conclusion is, that to allow no more to this superior principle or part of our nature, than to other parts; to let it govern and guide only occasionally, in common with the rest, as its turn happens to come from the temper and circumstances one happens to be in; *this is not to act conformably to the constitution of man;* neither can any human creature be said to act conformably to his constitution of nature, unless he allows to that superior principle the absolute authority which is due to it."—*Butler's Works*, vol. ii. *Preface.* The present treatise is in a great measure founded on the principles here suggested.

SECT. I.—MAN CONSIDERED AS A PHYSICAL BEING.

The human body consists of bones, muscles, nerves, and bloodvessels, besides organs of nutrition, of reproduction, of respiration, of feeling, and of thought. These parts are all composed of physical elements, and

* Sketches, B. 3. Sk. 3, ch. 2.

to a certain extent, are subjected to the physical laws of creation. By the law of gravitation, the body falls to the ground when unsupported, and is liable to be injured like any frangible substance; by a chemical law, excessive cold freezes, and excessive heat dissipates, its fluids; and life, in either case, is extinguished.

To discover the real effect of the physical laws of nature on human happiness, we would require to understand, 1*st*, The physical laws themselves, as revealed by mathematics, natural philosophy, natural history, chemistry, and their subordinate branches; 2*dly*, The anatomical and physiological constitution of the human body; and, 3*dly*, The adaptation of the former to the latter. These expositions are necessary to ascertain the extent to which it is possible for man to place himself in accordance with the physical laws, so as to reap advantage from them; and also to determine how far the sufferings which he endures fall to be ascribed to the inevitable operation of these laws, and how far to his ignorance and infringement of them. In the subsequent pages, this subject will be treated somewhat in detail: at present I confine myself to a single instance as an illustration of the mode in which the investigation ought to be conducted.*

By the law of gravitation, heavy bodies always tend towards the centre of the earth. Some of the advantages of this law are, that objects, when properly supported, remain at rest; that walls, when built sufficiently thick and perpendicular, stand firm and erect; that water descends from high places, and precipitates itself down the channels of rivers, turns mill-wheels in its course, and sets in motion the most stupendous and useful machinery; and that ships move steadily through the water with part of their hulls immersed and part rising moderately above it, and their masts and sails towering in the air to catch the inconstant breeze.

To place man in harmony with this law, the Creator has bestowed on him bones, muscles, and nerves, constructed on the most perfect principles, which enable him to preserve his equilibrium, and to adapt his movements to gravitation; also intellectual faculties, calculated to perceive the existence of the law, its modes of operation, the relation between it and himself, the beneficial consequences of observing this relation, and the painful results of disregarding it.

When a person falls over a precipice, and is maimed or killed—when a ship springs a leak and sinks—or when a reservoir of water breaks down its banks and ravages a valley—the evils, no doubt, proceed from the operation of this law; but we ought to inquire whether they could or could not have been prevented, by a due exercise of the physical and mental powers bestowed by the Creator on man, to enable him to avoid the injurious effects of gravitation.

By pursuing this course, we shall arrive at sound conclusions concerning the adaptation of the human mind and body to the physical laws of creation. The subject is too extensive to be here prosecuted in all its details, and I am incompetent, besides, to do it justice; but enough has been said to elucidate the principle contended for. And the more minutely any one inquires, the more firm will be his conviction, that, in these relations, admirable provision has been made by the Creator for human happiness, and that the evils which arise from neglect of them, are attributable, to a great extent, to man's not adequately applying his powers to the promotion of his own enjoyment.

SECT. II.—MAN CONSIDERED AS AN ORGANISED BEING.

Man is an organised being, and subject to the organic laws. An organised being, as was formerly noticed, is one which derives its existence from a previously existing organised being, which subsists on food, which grows, attains maturity, decays, and dies. The *first* law, then, that must be obeyed, to render an organised being perfect in its kind, is, that the germ from which it springs shall be complete in all its parts, and sound in its whole constitution. If we sow an acorn in which some vital part has been destroyed altogether, the seedling plant, and the full-grown oak, if it ever attain to maturity, will be deficient in the lineaments which are wanting in the embryo root; if we sow an acorn entire in its parts, but only half ripened, or damaged in its whole texture by damp or other causes, the seedling oak will be feeble, and will probably die early. A similar law holds in regard to man. A *second* organic law is, that the organised being, the moment it is ushered into life, and so long as it continues to live, must be supplied with food, light, air, and every other physical element requisite for its support, in due quantity, and of the kind best suited to its particular constitution. Obedience to this law is rewarded with a vigorous and healthy developement of its powers, and, in animals, with a pleasing consciousness of existence, and aptitude for the performance of their natural functions; disobedience is punished with feebleness, stinted growth, general imperfection, or early death. A single fact will illustrate this observation. At the meeting of the British Association, held in Edinburgh in 1834, there was read an Abstract, by Dr Joseph Clarke, of a Registry kept in the Lying-in Hospital of Great Britain Street, Dublin, from the year 1758 to the end of 1833, from which it appeared, that, in 1781, when the hospital was imperfectly ventilated, every sixth child died within nine days after birth of convulsive disease, and that, after means of thorough ventilation had been adopted, the mortality of infants, within the same time, in five succeeding years, was reduced to nearly one in twenty.* A *third* organic law, applicable to man, is, that he shall duly exercise his organs, this condition being an indispensable prerequisite of health. The reward of obedience to this law, is enjoyment in the very act of exercising the functions, pleasing consciousness of existence, and the acquisition of numberless gratifications and advantages, of which labour, or the exercise of our powers, is the procuring means: disobedience is punished with derangement and sluggishness of the functions, with general uneasiness or positive pain, and with the denial of gratification to numerous faculties.

Directing our attention to the constitution of the human body, we perceive that the power of reproduction is bestowed on man, and also intellect to enable him to discover and obey the conditions necessary for the transmission of a healthy organic frame to his descendants; that digestive organs are given to him for his nutrition, and that innumerable vegetable and animal productions are placed around him, in wise relationship to these organs.

Without attempting to expound minutely the organic structure of man, or to trace in detail its adaptation to his external condition, I shall offer some observations in support of the proposition, that the due exercise of the osseous, muscular, and nervous systems, under the guidance of intellect and moral sentiment, and in accordance with the physical laws, contributes to human enjoyment; and that neglect of this exercise, or an abuse of it, by carrying it to excess, or by conducting it in opposition to the moral, intellectual, or physical laws, is punished with pain.

The earth is endowed with the capability of producing an ample supply of food, provided we expend muscular and nervous energy in its cultivation; while, in most climates, it refuses to produce, if we withhold this labour and allow it to lie waste: Further, the Creator has presented us with timber, metal, wool, and countless materials, which, by means of muscular power, may be converted into dwelling-places, clothing, and all the luxuries of life. The fertility of the earth, and the demands of the body for food and clothing, are so

* The reader will find many valuable illustrations of these laws in "The Principles of Physiology applied to the Preservation of Health, and to the Improvement of Physical and Mental Education," by Andrew Combe, M.D. Third edition. Maclachlan & Stewart, Edinburgh; and Simpkin, Marshall, & Co. London.

* New Phil. Jour., Oct. 1834, p. 416.

benevolently adapted to each other, that, with rational restraint on population, a few hours' labour each day from every individual capable of working, would suffice to furnish all with every commodity that could really add to enjoyment. "It has been computed," says Dr Franklin, "by some political arithmetician, that, if every man and woman would work for four hours each day on something useful, that labour would be sufficient to procure all the necessaries and comforts of life; want and misery would be banished out of the world; and the rest of the twenty-four hours might be leisure and pleasure."—(*Essay on Luxury, Idleness, and Industry.*)

In the tropical regions of the globe, where a high atmospheric temperature diminishes the quantum of muscular energy, the fertility and productiveness of the soil are increased in a like proportion, so that less labour suffices. Less labour, also, is required to provide habitations and raiment. In the colder latitudes, muscular energy is greatly increased, and there much higher demands are made upon it: the earth is more sterile, and the piercing frosts render necessary a thicker covering for the body.

Further, the food afforded by the soil in each climate appears to be adapted to the maintenance of the organic constitution of the people in health, and to the supply of the muscular energy necessary for the particular wants of the situation. In the Arctic Regions no farinaceous food ripens; but on the question being put to Dr Richardson, how he, accustomed to the bread and vegetables of the temperate regions, was able to endure the pure animal diet, which formed his only support on his expedition to the shores of the Polar Sea along with Captain Franklin, he replied, that the effect of the extreme dry cold to which he and his companions were constantly exposed—living, as they did, in the open air—was to produce a desire for the most stimulating food they could obtain; that bread in such a climate was not only not desired, but comparatively impotent, as an article of diet; that pure animal food, and the fatter the better, was the only sustenance that maintained the tone of the corporeal system; but that when it was abundant (and the quantity required was much greater than in milder latitudes), a delightful vigour and buoyancy of mind and body were enjoyed, that rendered life highly agreeable. Now, in beautiful harmony with these wants of the human frame, these regions abound, during summer, in countless herds of deer, in rabbits, partridges, ducks, and, in short, every sort of game, and also in fish; and the flesh of these, dried, constitutes delicious food in winter, when the earth is wrapped in one wide mantle of snow.

Among the Greenlanders and other Esquimaux tribes, nothing is so much relished as the fat of the whale, the seal, or the walrus: a tallow candle and a draught of train oil are regarded as dainties; while a piece of bread is spit out with strong indications of disgust.

In Scotland, the climate is moist and moderately cold; the greater part of the surface is mountainous, and well adapted for rearing sheep and cattle; while a certain portion consists of fertile plains, fitted for raising farinaceous food. If the same law holds in this country, the diet of the people should consist of animal and farinaceous food, the former predominating; and on such food, accordingly, the Scotsman thrives best. As we proceed to warmer latitudes, to France for instance, we find the soil and temperature less congenial to sheep and cattle, but more favourable to corn and wine; and the Frenchman flourishes in health on less of animal food than would be requisite to preserve the Scottish Highlander, in the recesses of his mountains, in a strong and alert condition. From one of a series of interesting letters on the agriculture of France by M. Lullin de Chateauvieux, published in the Bibliothèque Universelle, it appears that the consumption of beef in that country relative to the population, is only one-sixth of what it is in England. (*Journal of Agriculture*, No. iii. p. 390.) The plains of Hindustan are too hot for the extensive rearing of the sheep and the ox, but produce rice and vegetable spices in prodigious abundance; and the native is healthy, vigorous, and active, when supplied with rice and curry, and becomes sick when obliged to live chiefly on animal diet. He is supplied with less muscular energy by this species of food; but his soil and climate require far less laborious exertion to maintain him in comfort, than those of Britain, Germany, or Russia.

So far, then, the external world appears to be wisely and benevolently adapted to the organic system of man; that is, to his nutrition, and to the developement and exercise of his corporeal organs. The natural law appears to be, that every one who desires to enjoy the pleasures of health, must expend in labour the energy which the Creator has infused into his limbs. A wide choice is left to man, as to the *mode* in which he shall exercise his nervous and muscular systems: The labourer, for example, digs the ground, and the squire engages in the chase; both pursuits exercise the body. The penalty for neglecting this law is imperfect digestion and disturbed sleep, debility, bodily and mental lassitude, and, if carried to a certain length, confirmed bad health and early death. The penalty for over-exerting these systems is exhaustion, mental incapacity, the desire of strong artificial stimulants (such as ardent spirits), general insensibility, grossness of feeling and perception, with disease and shortened life.

Society has not recognised this law; and, in consequence, the higher orders despise labour and suffer the first penalty, while the lower orders are oppressed with toil and undergo the second. The penalties serve to provide motives for obedience to the law; and whenever it is recognised, and the consequences are discovered to be inevitable, men will no longer shun labour as painful and ignominious, but resort to it as a source of pleasure and advantage.*

SECT. III.—MAN CONSIDERED AS AN ANIMAL, MORAL, AND INTELLECTUAL BEING.

I have adverted to the bodily constitution of man, which is essentially animal; but I observe, in the third place, that man, viewed in regard to his mental constitution, is an animal, moral, and intellectual being. To discover the adaptation of the mental parts of his nature to his external circumstances, we must first know what are his various animal, moral, and intellectual powers themselves. Phrenology gives us a view of them, drawn from observation; and as I have verified the inductions of that science, so as to satisfy myself that it is the most complete and correct exposition of the nature of man which has yet been given, I adopt its classification of faculties as the basis of the subsequent observations. One great advantage presented by Phrenology, is the light which it throws on the *natural* constitution of the mind. Philosophers and divines have long disputed about the number and functions of the human faculties; and while each assumed his own consciousness as the standard of nature, and occupied himself chiefly with observations on its phenomena, as his means of study, there could be no end to their discussions. But the organs of the mind can be seen and felt, and their size estimated—and the mental manifestations also that accompany them can be observed, in an unlimited number of instances—so that, assuming the existence of organs, it is clear that a far higher degree of certainty in regard to the *natural* endowments of the mind may be attained by these means, than by any other previously applied. It is disputed also whether man be now in possession of the same qualities as those with which he was created: but the fact of the organs having been bestowed by the Creator is not open to contradiction, if they exist at all; and if we discover their functions and their uses, and distinguish these from their abuses, we shall obviously obtain clearer views of what God has instituted, and of the extent to which man himself is chargeable

* See Appendix, No. II.

with error and perversion, than could be arrived at by the means hitherto employed. Such conclusions, if correctly drawn, will possess an irresistible authority —that of the record of creation itself. If, therefore, any reader be disposed to question the existence of such qualities in man as I am about to describe, he must, to do so consistently, be prepared to deny, on reasonable grounds, that mental organs exist—or, if he allows their existence, he must establish that the observations of phrenologists in regard to them are incorrect, or their inferences regarding their functions erroneously deduced. According to Phrenology, then, the human faculties are the following. The organs are double, each faculty having two, lying in corresponding situations of the hemispheres of the brain.

Order I. FEELINGS.

Genus I. PROPENSITIES—*Common to Man with the Lower Animals.*

THE LOVE OF LIFE.

APPETITE FOR FOOD.—*Uses:* Nutrition.—*Abuses:* Gluttony and drunkennesss.

1. AMATIVENESS—Produces sexual love.
2. PHILOPROGENITIVENESS.—*Uses:* Affection for young and tender beings.—*Abuses:* Pampering and spoiling children.
3. CONCENTRATIVENESS.—*Uses:* It gives the desire of permanence in place, and renders permanent, emotions and ideas in the mind.—*Abuses:* Aversion to move abroad; morbid dwelling on internal emotions and ideas, to the neglect of external impressions.
4. ADHESIVENESS.—*Uses:* Attachment; friendship and society result from it.—*Abuses:* Clanship for improper objects, attachment to worthless individuals. It is generally strong in women.
5. COMBATIVENESS.—*Uses:* Courage to meet danger and overcome difficulties, tendency to oppose and attack whatever requires opposition, and to resist unjust encroachments. *Abuses:* Love of contention, and tendency to provoke and assault. This feeling obviously adapts man to a world in which danger and difficulty abound.
6. DESTRUCTIVENESS.—*Uses:* Desire to destroy noxious objects, and to kill for food. It is very discernible in carnivorous animals.—*Abuses:* Cruelty, murder, desire to torment, tendency to passion, rage, and harshness and severity in speech and writing. This feeling places man in harmony with death and destruction, which are woven into the system of sublunary creation
7. SECRETIVENESS.—*Uses:* Tendency to restrain within the mind the various emotions and ideas that involuntarily present themselves, until the judgment has approved of giving them utterance; it is simply the propensity to conceal, and is an ingredient in prudence.—*Abuses:* Cunning, deceit, duplicity, and lying.
8. ACQUISITIVENESS.—*Uses:* Desire to possess, and tendency to accumulate articles of utility, to provide against want.—*Abuses:* Inordinate desire of property, selfishness, avarice, theft.
9. CONSTRUCTIVENESS.—*Uses:* Desire to build and construct works of art.—*Abuses:* Construction of engines to injure or destroy, and fabrication of objects to deceive mankind.

Genus II. SENTIMENTS.

I. *Sentiments common to Man with the Lower Animals.*

10. SELF-ESTEEM.—*Uses:* Self-respect, self-interest, love of independence, personal dignity.—*Abuses:* Pride, disdain, overweening conceit, excessive selfishness, love of dominion.
11. LOVE OF APPROBATION.—*Uses:* Desire of the esteem of others, love of praise, desire of fame or glory.—*Abuses:* Vanity, ambition, thirst for praise independently of praiseworthiness.
12. CAUTIOUSNESS.—*Uses:* It gives origin to the sentiment of fear, the desire to shun danger, and circumspection; and it is an ingredient in prudence.—*Abuses:* Excessive timidity, poltroonery, unfounded apprehensions, despondency, melancholy.
13. BENEVOLENCE.—*Uses:* Desire of the happiness of others, universal charity, mildness of disposition, and a lively sympathy with the enjoyment of all animated beings.—*Abuses:* Profusion, injurious indulgence of the appetites and fancies of others, prodigality, facility of temper.

II. *Sentiments proper to Man.*

14. VENERATION.—*Uses:* Tendency to venerate or respect whatever is great and good; gives origin to religious adoration.—*Abuses:* Senseless respect for unworthy objects consecrated by time or situation, love of antiquated customs, abject subserviency to persons in authority, superstitious awe.
15. FIRMNESS.—*Uses:* Determination, perseverance, steadiness of purpose.—*Abuses:* Stubbornness, infatuation, tenacity in evil.
16. CONSCIENTIOUSNESS.—*Uses:* It gives origin to the sentiment of justice, or respect for the rights of others, openness to conviction, the love of truth.—*Abuses:* Scrupulous adherence to noxious principles when ignorantly embraced, excessive refinement in the views of duty and obligation, excess in remorse or self-condemnation.
17. HOPE.—*Uses:* Tendency to expect future good; it cherishes faith.—*Abuses:* Credulity with respect to the attainment of what is desired, absurd expectations of felicity not founded on reason.
18. WONDER.—*Uses:* The desire of novelty; admiration of the new, the unexpected, the grand, the wonderful, and extraordinary.—*Abuses:* Love of the marvellous, and occult; senseless astonishment; belief in false miracles, in prodigies, magic, ghosts, and other supernatural absurdities.—*Note.* Veneration, Hope, and Wonder, combined give the tendency to religion; their abuses produce superstition.
19. IDEALITY.—*Uses:* Love of the beautiful and splendid, desire of excellence, poetic feeling.—*Abuses:* Extravagance and absurd enthusiasm, preference of the showy and glaring to the solid and useful, a tendency to dwell in the regions of fancy and to neglect the duties of life.
20. WIT—Gives the feeling of the ludicrous, and disposes to mirth.
21. IMITATION—Copies the manners, gestures, and actions of others, and appearances in nature generally.

Order II. INTELLECTUAL FACULTIES.

Genus I. EXTERNAL SENSES.

FEELING or TOUCH.
TASTE.
SMELL.
HEARING.
SIGHT.

Uses: To bring man into communication with external objects, and to enable him to enjoy them.—*Abuses:* Excessive indulgence in the pleasures arising from the senses, to the extent of impairing bodily health, and debilitating or deteriorating the mind.

Genus II. KNOWING FACULTIES, WHICH PERCEIVE THE EXISTENCE AND QUALITIES OF EXTERNAL OBJECTS.

22. INDIVIDUALITY—Takes cognisance of existence and simple facts.
23. FORM—Renders man observant of form.
24. SIZE—Gives the idea of space, and enables us to appreciate dimension and distance.
25. WEIGHT—Communicates the perception of momentum, weight, and resistance; and aids equilibrium.
26. COLOURING—Gives perception of colours and their harmonies.

Genus III. KNOWING FACULTIES, WHICH PERCEIVE THE RELATIONS OF EXTERNAL OBJECTS.

27. LOCALITY—Gives the idea of relative position.
28. NUMBER—Gives the talent for calculation.
29. ORDER—Communicates the love of physical arrangement.
30. EVENTUALITY—Takes cognisance of occurrences or events
31. TIME—Gives rise to the perception of duration.
32. TUNE—The sense of Melody and Harmony arises from it.
33. LANGUAGE—Gives facility in acquiring a knowledge of arbitrary signs to express thoughts, readiness in the use of them, and the power of inventing and recollecting them.

Genus IV. REFLECTING FACULTIES, WHICH COMPARE, JUDGE, AND DISCRIMINATE.

34. COMPARISON—Gives the power of discovering analogies, resemblances, and differences.
35. CAUSALITY—Traces the dependences of phenomena, and the relation of cause and effect.

Observation proves that each of these faculties is connected with a particular portion of the brain, and that the power of manifesting each bears a relation to the size and activity of its organ. The organs differ in relative size in different individuals, and hence their

differences of talents and dispositions. This fact is of the greatest importance in the philosophy of man; and the circumstance of its having been unknown until Dr Gall's discovery of the functions of the brain, is sufficient to explain the past barrenness of mental science, and to render probable the assertion, that a great flood of light on this subject is now pouring forth on the world. These faculties are not all equal in excellence and authority; some are common to man with the lower animals, and others are peculiar to man. Before comparing the human mind, therefore, with its external condition, it becomes an object of primary importance to discover the relative rank and authority of these different powers. If the Animal Faculties are naturally or necessarily supreme—in other words, if man is by nature only an animal of superior intelligence, then external creation, if it be wisely constituted, may be expected to bear direct reference, in its arrangements, to this supremacy; and to be calculated to render him most happy when acting in conformity with his animal feelings. If the Moral and Intellectual Faculties hold the ascendancy, then the constitution of external nature may be expected to be in harmony with them—in other words, to confer the highest degree of enjoyment on man, when he acts under the guidance of his moral and intellectual powers. I am not here teaching Phrenology, or developing its principles and evidences, but merely explaining it so far as indispensable for the purposes of this work. I refer to the Treatises on Phrenology for details.

SECT. IV.—THE FACULTIES OF MAN COMPARED WITH EACH OTHER; OR THE SUPREMACY OF THE MORAL SENTIMENTS AND INTELLECT.

According to the phrenological theory of human nature, the faculties are divided into Propensities common to man with the lower animals, Sentiments common to man with the lower animals, Sentiments proper to man, and Intellect. Every faculty stands in a definite relation to certain external objects: when it is internally active, it desires these objects; when they are presented to it, they excite it to activity, and delight it with agreeable sensations. Human happiness and misery are resolvable into the gratification, and denial of gratification, of one or more of our mental faculties, or of the feelings connected with our bodily frame. The faculties, in themselves, are mere instincts; the moral sentiments and intellect being higher instincts than the animal propensities. Every faculty is good in itself, but all are liable to abuse. Their operations are right only when they act in harmony with each other, enlightened intellect and moral sentiment holding the supremacy.

The faculties may be considered as acting in a variety of ways. First, The lower propensities may be viewed as acting by themselves, each seeking its own gratification, but without transgressing the limits prescribed by enlightened intellect and the moral sentiments: this gratification is legitimate and proper, and the fountain of much enjoyment to human beings. Secondly, The propensities may be considered as acting in opposition to the dictates of the moral sentiments and intellect: a merchant, for instance, by misrepresentation of the real qualities of his commodities, may obtain a higher price for them than if he spoke the truth; or, by depreciating unjustly the goods of a rival, he may attract that rival's customers to himself: By such conduct he would apparently benefit himself, but he would infringe the dictates of the moral sentiments and intellect; in other words, he would do an injury to the interests of his rival proportionate to the undue benefit which he attempted to secure to himself: All such manifestations of the propensities are abuses, and, when pursued systematically to their results, are seen to injure not only the individual against whom they are directed, but him also who practises them. Thirdly, The moral sentiments may be regarded as acting by themselves, each seeking its own gratification: thus Benevolence may prompt an individual to do acts of kindness, and Veneration to perform exercises of devotion. When the gratification sought by any one or more of the sentiments does not infringe the duties prescribed by all the other sentiments and enlightened intellect, the actions are proper. But any one moral sentiment, acting by itself, may run into excess—Benevolence, for instance, may instigate to generosity at the expense of justice; Veneration may prompt a person to run after sermons abroad, when he should be discharging his domestic duties, or instructing his children at home—which actions also are abuses.

Thus there is, 1st, a wide sphere of action provided for the propensities, in which each may seek its gratification in its own way, without exceeding the limits of morality: and this is a good and proper action: 2dly, There is ample scope for the exercise of each of the moral and intellectual faculties, without infringing the dictates of any of the other faculties belonging to the same classes; and this action also is good. But, on the other hand, the propensities, and also the moral and intellectual faculties, may act singly or in groups, in opposition to the dictates of the whole moral sentiments and intellectual powers enlightened by knowledge and acting in combination; and all such actions are wrong. Hence right conduct is *that which is approved of by the whole moral and intellectual faculties, fully enlightened, and acting in harmonious combination.* This I call the supremacy of the moral sentiments and intellect.

In maintaining this supremacy, therefore, I do not consider any of the moral sentiments and intellectual faculties singly, or even the whole of them collectively, as sufficient to direct conduct by their mere instinctive suggestions. To fit them to discharge this important duty, they must act in harmonious combination, and be illuminated by knowledge of science and of moral and religious duty. The sources of knowledge are observation and reflection—experience—and instruction by books, teachers, and all other means by which the Creator has provided for the improvement of the human mind. Whenever their dictates, thus combined and enlightened, oppose the solicitations of the propensities, the latter must yield—otherwise, by the constitution of nature, evil will inevitably ensue. This is what I mean by nature being constituted in harmony with the supremacy of the moral sentiments and intellect.

Phrenology shows that different individuals possess the faculties in very different degrees: I do not mean, therefore, to say, that in each individual, whatever the proportion of his organs may be, the dictates of his moral and intellectual powers are rules of conduct not to be disputed. On the contrary, in most individuals one or several of the moral or intellectual organs are so deficient in size, in proportion to the organs of the propensities, that their individual perceptions of duty will be far short of the highest standard. The dictates of the moral and intellectual powers, therefore, which constitute rules of conduct, are the collective dicta of the highest minds illuminated by the greatest knowledge.

Let us now consider the faculties themselves. First, I shall view the propensities as acting alone, uninfluenced by the moral and intellectual powers. There is ample scope for their proper activity in this way; but the great distinction between the animal faculties and the powers proper to man is, that the former do not prompt us to seek the welfare of mankind at large; their object is chiefly the preservation of the individual himself, his family or his tribe; while the latter have the general happiness of the human race, and our duties to God, as their ends.

The Love of Life, and The Appetite for Food, have clearly reference to the preservation of the individual alone.

Even the domestic affections, amiable and respectable as they undoubtedly are when combined with the moral feelings, have self as their chief object. The first three propensities, Amativeness, Philoprogenitiveness, and Adhesiveness, or the group of

the domestic affections, desire a conjugal partner, offspring, and friends: the obtaining of these affords them delight—the removal of them occasions pain. But they do not take an interest in the welfare of their objects on their own account. He who loves from Amativeness alone is sensual, faithless, and negligent of the happiness of its object. He who combines with love springing from this propensity, Benevolence, Veneration, Justice, and Intellect, will disinterestedly promote the real happiness of the object of his affection.

The whole faculties, as I have already repeatedly observed, must be gratified harmoniously, or at least the gratification of one or more of them must not offend any of the others. For example, suppose the group of the domestic affections to be highly interested in an individual, and strongly to desire to form an alliance with him, but that the person so loved is improvident and immoral, and altogether an object of whom the higher faculties, if left dispassionately to survey his qualities, could not approve; then, if an alliance be formed with him, under the ungovernable impulses of the lower feelings, bitter days of repentance will necessarily follow, when these begin to languish, and his qualities give the latter faculties offence. If, on the other hand, the domestic affections are guided to an object pleasing to the better powers, these themselves will be gratified; they will double the delights afforded by the inferior faculties, and render the enjoyment permanent.

The love of children, springing from Philoprogenitiveness, is the same in kind as that of the miser for his gold; an interest in the object, for the sake of the gratification it affords to his own mind, without desiring, or being able to distinguish, what is good for the object on its own account. This truth is recognised by Sir Walter Scott. He says, "Elspat's ardent, though selfish affection for her son, incapable of being qualified by a regard for the true interests of the unfortunate object of her attachment, resembled the instinctive fondness of the animal race for their offspring; and, diving little farther into futurity than one of the inferior creatures, she only felt that to be separated from Hamish was to die."*

In man, this faculty generally acts along with Benevolence, and a disinterested desire of the happiness of the child mingles with, and elevates, the mere instinct of Philoprogenitiveness; but the sources of these two affections are different, their degrees vary in different persons, and their ends also are dissimilar. This is exemplified every day by the conduct of mothers, who, although actuated by an intense instinctive love of their offspring, nevertheless spoil them by vicious indulgence, and render them completely miserable. If Philoprogenitiveness were capable, by itself, of desiring and perceiving the real welfare of children, the treatment of them would, in all cases, be rational and beneficial, in proportion to the degree in which this faculty was active; but this is not consistent with experience. Again, Christian mothers, who sincerely believe that, at death, their children pass into everlasting happiness, which is far better for them than sojourning on earth, nevertheless show the highest indications of bereavement and sorrow on their loss; —thus affording evidence that their love was an instinct which gives pain when disappointed, and not a disinterested affection concerned exclusively for the happiness of the being itself which constituted its object.

The same observation applies to the affection proceeding from ADHESIVENESS. When this faculty acts alone, it desires, for its own satisfaction, a friend to love; but, from its own impulses, it is not interested in the welfare of its object. It feels attached to him as a sheep does to its fellows of the flock; but if Benevolence do not act along with it, it does nothing for the happiness of that friend. Both Adhesiveness and Philoprogenitiveness tend to excite Benevolence towards their objects: when this sentiment, however, is naturally very weak, the propensities cannot render it vividly active. The horse feels melancholy when his companion is removed; but the feeling appears to be simply one of uneasiness at the absence of an object which gratified his Adhesiveness. His companion may have been led to a richer pasture, or introduced to more agreeable society; yet this does not assuage the distress suffered by him at his removal: his tranquillity, in short, is restored only by time causing the activity of Adhesiveness to subside, or by the substitution of another object on which it may exert itself. In human nature, the effect of the faculty, when acting singly, is the same; and this accounts for the fact of the almost total indifference of many persons who were really attached by Adhesiveness to each other, when one falls into misfortune, and becomes a disagreeable object to the pride or vanity of the other. Suppose two persons, elevated in rank, and possessed of affluence, to have each Adhesiveness, Self-Esteem, and Love of Approbation, large, with Benevolence and Conscientiousness moderate, it is obvious that, while both are in prosperity, they may really like each other's society, and feel a reciprocal attachment, because there will be mutual sympathy in their Adhesiveness, and the Self-Esteem and Love of Approbation of each will be gratified by the rank and circumstances of the other: but imagine one of them to fall into misfortune, and to cease to be an object gratifying to Self-Esteem and Love of Approbation; suppose that he becomes a poor friend instead of a rich and influential one; the harmony between their selfish faculties will be broken, and then Adhesiveness in the one who remains rich will transfer its affection to another individual who may gratify it, and also supply agreeable sensations to Self-Esteem and Love of Approbation—to a genteel friend, in short, who will look well in the eye of the world.

Much of this conduct occurs in society, and the whining complaint is very ancient, that the storms of adversity disperse friends, just as the wintry blast strips from the forest the leaves that gaily adorned it in the sunshine of summer; and many moral sentences have been pointed, and epigrams finely turned, on the selfishnesss and corruption of poor human nature. But such friendships were attachments founded on the lower feelings, which, by their constitution, do not regard the welfare of others; and the desertion complained of is the fair and legitimate result of the principles on which both parties acted during the gay hours of prosperity. If we look at a cast of the head of Sheridan, we shall perceive large Adhesiveness, Self-Esteem, and Love of Approbation, with deficient Causality, and moderate Conscientiousness. He had large Individuality, Comparison, Secretiveness, and Imitation, which gave him talents for observation and display. When these earned him a brilliant reputation, he was surrounded by friends, and he himself probably felt attachment in return. But he was deficient in morality, and this prevented him from loving his friends with a true, disinterested, and honest regard; he abused their kindness; and as he sank into poverty and wretchedness, and ceased to be an honour to them or to excite their Love of Approbation, all who were constituted like himself deserted him. But the whole connexion was founded on selfish principles: Sheridan honoured them, and they flattered Sheridan; and the abandonment was the natural consequence of the cessation of gratification to their selfish feelings. I shall, by and bye, point out the sources of a loftier and purer friendship, and its effects. It was only those individuals who acted from Adhesiveness combined with the higher feelings, that remained attached to him through all his misfortunes.

COMBATIVENESS and DESTRUCTIVENESS also, when acting in combination with the other propensities, do not in their own nature seek the happiness of others. If aggression is committed against us, Combativeness shows the front of opposition and repels the attack; Destructiveness inflicts pain or injury, to make the aggressor desist, or as vengeance for the offence. Both

* Chronicles of the Canongate, vol. i. p. 281.

feelings are obviously very different from Benevolence. I do not say, that, in themselves, they are despicable or sinful; on the contrary, they are necessary, and, when legitimately employed, highly useful; but still their first and instinctive object is the preservation of self.

SECRETIVENESS suppresses feelings that are improper to be manifested, and that might injure us with other individuals, and restrains the faculties generally. It also desires to find out secrets that may enable its possessor to guard self against hostile plots or designs. In itself it does not desire, in any respect, the benefit of others.

The next organ is ACQUISITIVENESS. It blindly desires to possess, is pleased with accumulating, and suffers great uneasiness in being deprived of possessions; but its object is not the happiness of others. Like all the other faculties, it is highly useful, for even Benevolence cannot give away until Acquisitiveness has acquired. There are friendships, particularly among mercantile men, founded on Adhesiveness and Acquisitiveness, just as in fashionable life they are founded on Adhesiveness and Love of Approbation. Two individuals fall into a course of dealing, by which each reaps profit from transactions with the other: this leads to intimacy; Adhesiveness mingles its influence, and a feeling of attachment is at last produced. The moment, however, that the Acquisitiveness of the one suffers the least inroad from that of the other, and their interests clash, they are apt, if no higher principle unite them, to become bitter enemies. It is probable that, while these fashionable and commercial friendships last, the parties may profess great reciprocal esteem and regard, and that, when a rupture takes place, the one who is depressed or disobliged may recall these expressions, and charge the other with hypocrisy; but they really were not insincere. From Adhesiveness and gratified Love of Approbation or Acquisitiveness, each probably felt something which he coloured over, and perhaps believed to be disinterested friendship; but if each would honestly probe his own conscience, he would be obliged to acknowledge that the whole basis of the connexion was selfish —and hence, that the result is just what ought to be expected by every man who places his reliance for happiness chiefly on the lower feelings.

SELF-ESTEEM is, in its very essence and name, selfish: it is the love of ourselves, and the esteem of ourselves *par excellence*.

LOVE OF APPROBATION, although many think otherwise, does not in itself desire the happiness of others. Its object is applause to ourselves, to be esteemed ourselves; and if it prompt us to do services, or to say agreeable things to others, this is not from pure love of them, but for the sake of obtaining the self-gratification afforded by their good opinion.

Suppose, for example, that we are acquainted with a person who has committed an error in some official duty—who has done or said something that the public disapprove of, and which we see to be really wrong —Benevolence and Conscientiousness would prompt us to lay before our friend the very head and front of his offending, and conjure him to forsake his error, and make public amends:—Love of Approbation, on the other hand, would simply desire to gain his applause, by making ourselves agreeable to him, without looking farther. If unenlightened, it would either render us averse to speak to him at all on the subject, lest he should be offended; or prompt us to extenuate his fault, to gloss it over, and to represent it either as a simple mistake or as extremely trivial. If we analyse the motive which prompts to this course, we shall find that it is not love of our friend or consideration for his welfare—but fear lest, by our presenting to him disagreeable truths, he should feel offended with us, and deprive us of the gratification afforded by his good opinion.

Another illustration may be given:—A manufacturer in a country town, having acquired a considerable fortune by trade, applied part of it in building a princely mansion, which he furnished in the richest and most expensive style of fashion. He asked his customers, near and distant, to visit him, and introduced them into an apartment that dazzled them with splendour. This excited their curiosity and wonder, which was precisely the effect he desired; he then led them over his whole suite of rooms, and displayed before them his grandeur and taste. In doing so, he affected to act as if he were conferring a high pleasure on them, and believed that he was filling their minds with an intense admiration of his greatness; but the real effect was very different. The motive of his conduct was not love of them, or regard for their happiness or welfare: it was not Benevolence to others that prompted him to build the palace; it was not Veneration; it was not Conscientiousness. The fabric sprang from Self-Esteem and Love of Approbation, combined, no doubt, with considerable Intellect and Ideality. In leading his humble brethren in trade through the princely halls, over the costly carpets and amidst the gilded mirrors and rich array that every where met their eyes, he exulted in the consciousness of his own importance, and asked for their admiration, not as an expression of respect for any real benefit conferred upon them, but as the much relished food of his own selfish vanity.

Let us attend, in the next place, to the effect which this display would produce on those to whom it was addressed. To gain their esteem or affection, it would have been necessary to manifest towards them Benevolence, respect, and justice; for, to cause another individual to love us, we must make him the object of our moral sentiments, which have his good and happiness for their end. Here, however, these were not the inspiring motives, and the want of them would be instinctively felt. The customers who possessed the least shrewdness would ascribe the whole exhibition to the vanity of the owner, and they would either pity, or envy and hate him: if their own moral sentiments predominated, they would pity him; if their Self-Esteem and Love of Approbation were paramount, they would envy his magnificence, yet be offended at his assumed superiority, and would hate him. It would be only the silliest and the vainest who would be at all gratified; and their satisfaction would arise from the feeling, that they could now return to their own circle, and boast how great a friend they had, and in how grand a style they had been entertained—this display being a direct gratification of their own Self-Esteem and Love of Approbation, by identifying themselves with him. Even this pleasure would exist only where the admirer was so humble in rank as to entertain no idea of rivalship, and so limited in intellect and morality as not to perceive the worthlessness of the qualities by which he was captivated.

In like manner, when persons, even of more sense than the manufacturer here alluded to, give entertainments to their friends, they sometimes fail in their object from the same cause. Their leading motive is a wish to show off themselves, much more than to confer real happiness upon their acquaintances; and, by the unbending law of human nature, this must fail in exciting goodwill and pleasure in the minds of those to whom it is addressed, because it disagreeably affects their Self-Esteem and Love of Approbation. In short, to be really successful in gratifying our friends, we must keep our own selfish faculties in due subordination, and pour out copious streams of real kindness from the higher sentiments, animated and elevated by intellect; and all who have experienced the heartfelt joy and satisfaction attending an entertainment conducted on this principle, will never quarrel with the homeliness of the fare, or feel uneasy about the absence of fashion in the service.

CAUTIOUSNESS is the next faculty, and is a sentiment instituted to prompt us to shun danger. Acting apart from the moral sentiments, it would seek first to protect self from evil; and this is its essential object.

This terminates the list of the Feelings common to man with the lower animals,* and which, as we have seen, when acting instinctively, either singly or in combination with each other, apart from the moral powers, do not seek the welfare of others as their aim, but have self-preservation and self-gratification as their leading objects. They are given for the protection and advantage of our individual nature, and, when manifested in their proper spheres, are highly useful, and also respectable, viewed with reference to that end; but they are sources of innumerable evils when allowed to usurp the ascendancy over the moral faculties, and to become the leading springs of our social conduct.

I proceed to notice the Moral Sentiments, which are proper to man, and to point out their objects and relations.

BENEVOLENCE has direct reference to other beings. It desires purely and disinterestedly the happiness of its objects: it loves for the sake of the person beloved; if he be well, and the sunbeams of prosperity shine warmly around him, it exults and delights in his felicity. It desires a diffusion of joy, and renders the feet swift and the arm strong in the cause of charity and love. By the beneficence of the Creator, it is, when gratified, the source of great enjoyment to its possessor; insomuch that some authors have asserted that men are benevolent for the sake of this pleasure. But this is not correct. The impulse is instinctive, and acts before the intellect has anticipated the result.

VENERATION also has reference to others. It looks up with a pure and elevated emotion to the being to whom it is directed, whether God or our fellow-men, and delights in the contemplation of their venerable and admirable qualities. It renders self lowly, humble, and submissive. God is its highest object.

HOPE spreads its gay wing in the boundless regions of futurity. It desires good, and expects it to come: "it incites us indeed to aim at a good which we can live without;" but its influence is soft, soothing, and happy. When combined with the propensities, it expects good to self; when with the moral sentiments, it anticipates universal happiness.

IDEALITY delights in perfection from the pure pleasure of contemplating it. So far as it is concerned, the picture, the statue, the landscape, or the mansion, on which it abides with the intensest rapture, is as pleasing, although the property of another, as if all its own. It is a spring that is touched by the beautiful wherever it exists; and hence its means of enjoyment are as unbounded as the universe.

WONDER seeks the new and the striking, and is delighted with change; but there is no desire of appropriation to self in its longings.

CONSCIENTIOUSNESS stands in the midway between self and other individuals. It implies the existence of both selfish and social tendencies in man, for one of its functions is to regulate their contending solicitations. It is a regulator of our animal feelings, and points out the limit which they must not pass. It desires to do to another as we would have another to do to us, and is the guardian of the welfare of our fellow-men, while it sanctions and supports our personal feelings within the bounds of due moderation. It is a noble feeling; and the mere consciousness of its being bestowed upon us, ought to bring home to our minds an intense conviction that the Author of the universe is at once wise and just.

The sentiments now enumerated may be erroneously directed, or may act in excess, and, in either case, may give rise to abuses, such as profusion, superstition, or extravagant refinement. But the grand distinction between them and the propensities is this: The propensities, acting even legitimately—singly, or in combination with each other, but not in combination with the moral sentiments—have individual interests for their direct objects, and do not actively desire the happiness of other beings for the sake of these beings themselves: the actions of the lower animals afford illustrations in point. The moral powers, on the other hand, acting in harmonious combination with each other, and directed by enlightened intellect, desire the welfare of other beings as their direct object; the purest and the best of men afford in their conduct examples of the truth of this remark.*

Intellect is universal in its applications. It may become the handmaid of any of the faculties; it may devise a plan to murder or to bless, to steal or to bestow, to rear up or to destroy; but as its proper use is to observe the different objects of creation, to mark their relations, and to direct the propensities and sentiments to their proper and legitimate enjoyments, it has a boundless sphere of activity, and, when properly exercised and applied, is a source of high and inexhaustible delight.

The world is so constituted, that all necessary really advantageous gratifications of the propensities, are compatible with the dictates of the moral sentiments and intellectual powers when acting in harmonious combination; and that all gratifications of the propensities which are disapproved of by the higher powers, are, in their ultimate consequences, hurtful to the individual himself. In like manner, all manifestations of the higher sentiments, when acting in harmonious combination and directed by enlightened intellect, although they tend directly to the welfare of others, indirectly contribute, in a high degree, to the enjoyment of the virtuous agent.

Keeping in view the great difference now pointed out between the animal and properly human faculties, the reader will perceive that three consequences follow from the constitution of these powers.

First, All the faculties, when in excess, are insatiable, and, from the constitution of the world, never can be satisfied. They indeed may be soon satisfied on any particular occasion. Food will soon fill the stomach; success in a speculation will render Acquisitiveness quiescent for the moment; a triumph will satisfy for the time Self-Esteem and Love of Approbation; a long concert will fatigue Tune; and a tedious discourse will afflict Causality. But after repose they will all *renew their solicitations*. They must all therefore be regulated, particularly the propensities and lower sentiments. These having self as their primary object, and being blind to consequences, do not set limits to their own indulgence; and, when allowed to exceed the boundaries prescribed by the superior sentiments and intellect, lead directly to misery to the individual, and injury to society.

As this circumstance attending the propensities is of great practical importance, I shall make a few observations in elucidation of it. The births and lives of children depend upon circumstances over which unenlightened men have but a limited control; and hence an individual, whose supreme happiness springs from the gratification of Philoprogenitiveness, may, by the predominance of that propensity and the inactivity of the higher powers, be led to neglect or infringe the natural laws on which the lives and welfare of children depend, to treat them irrationally, and thus to defeat his own desires. He will be in constant danger of anguish and disappointment, from the death of his children, or from their undutiful conduct. Besides, Philoprogenitiveness, acting in each parent along with Self-Esteem and Love of Approbation, would desire that his children should possess the highest rank and greatest wealth, and be distinguished for the most splendid talents. Now, the highest, the greatest, and the most splendid of any qualities, necessarily imply the

* Benevolence is stated in the works on Phrenology as common to man with the lower animals; but in these creatures it appears to produce rather passive meekness and good nature, than actual desire for each other's happiness. In the human race, this last is its proper function; and, viewed in this light, I treat of it as exclusively a human faculty.

* The classification of the moral sentiments in the phrenological system is not perfect: It includes Wit, Imitation, Firmness, and Wonder, which are not necessarily or essentially moral. By "the moral sentiments," when used as a general expression, I mean Benevolence, Veneration, and Conscientiousness aided by Hope and Ideality.

existence of inferior degrees, and are attainable only by few. The animal faculties, therefore, must be restrained in their desires, and directed to their objects by the moral sentiments, and by intellect, otherwise they will inevitably lead to disappointment. In like manner, Acquisitiveness desires wealth; but as nature affords annually only a limited quantity of grain, cattle, fruit, flax, and other articles, from which food clothing, and wealth, are manufactured; and as this quantity, divided equally among all the members of a state, would afford but a moderate portion to each; it is self-evident, that, if all desire to acquire and possess a large amount, ninety-nine out of every hundred must be disappointed. This disappointment, from the very constitution of nature, is inevitable to the greater number; and when individuals form schemes of aggrandisement, originating from desires communicated by the animal faculties alone, they would do well to keep this law of nature in view. When we look around us, we see how few become rich; how few succeed in accomplishing all their lofty anticipations for the advancement of their children; and how few attain the summit of ambition, compared with the multitudes who fail. The animal faculties exist in all men; and when they act without regulation, they prompt one man to defeat the gratification of another. All this arises, not from error and imperfection in the institutions of the Creator, but from blindness in men to their own nature, to the nature of external objects, and to the relations established between them; in short, from blindness to the principles of the divine administration of the world.

Secondly, The animal propensities being inferior in their nature to the human faculties, their gratifications, when not approved of by the latter, leave a painful feeling of discontent and dissatisfaction in the mind, occasioned by the secret disavowal of their excessive action by the higher feelings. Suppose, for example, a young person to set out in life with ardent wishes to acquire wealth, and to attain honour and distinction. Imagine him to rise early and sit up late; to put forth all the energies of a powerful mind in buying, selling, and becoming rich; and to be successful: it is obvious, that Benevolence, Veneration, and Conscientiousness, had a small share in prompting him to this course of action; and that, in pursuing it, they have not received direct and intended gratification. They may have anxiously and constantly watched the animal faculties, longing for the hour when they would say Enough; their whole occupation in the mean time, having been to restrain them from such gross excesses as would have defeated their own ends.

Suppose, then, this individual to have reached the evening of life, and to look back on the pleasures and pains of his past existence: he must feel that there has been vanity and vexation of spirit—or the want of a satisfying portion; because the highest of his faculties have not been the motives of his conduct, and have received no direct and adequate gratification. If an individual has, through life, aimed at acquiring reputation, he will find that the real affection and esteem of mankind which he has gained, will be great or small in proportion to the degree in which he has manifested, in his habitual conduct, the higher or the lower faculties. If men have seen him selfish in his pursuit of wealth, selfish in his domestic affections, selfish in his ambition—although he may have pursued his objects without positive encroachment on the rights of others, they will still look coldly on him—they will feel no glow of affection towards him, no elevated respect, and no sincere admiration. If he possess penetration, he will see and feel that this is the case; but the fault is his own: love, esteem, and sincere respect, arise, by the Creator's laws, from contemplating, not plodding selfish faculties, but Benevolence, Veneration, and Justice, as the motives and ends of our conduct; and the individual supposed has reaped the natural and legitimate produce of the soil which he cultivated, and the seed which he sowed.

Thirdly, The higher feelings, when acting in harmonious combination, and directed by enlightened intellect, have a boundless scope for gratification: their least indulgence is delightful, and their highest activity is bliss; they cause no repentance, leave no void, but render life a scene at once of peaceful tranquillity and sustained felicity: and, what is of much importance, conduct proceeding from their dictates carries in its train the highest gratification to the animal propensities themselves, of which the latter are susceptible. At the same time, it must be remembered, that the sentiments err, and lead also to evil, when not regulated by enlightened intellect; that intellect in its turn must give due weight to the existence and desires of both the propensities and the sentiments, as elements in the human constitution, before it can arrive at sound conclusions regarding conduct; and that rational actions and true happiness flow from the gratification of all the faculties *in harmony* with each other—the moral sentiments and intellect bearing the directing sway.

This proposition may be shortly illustrated:—Imagine an individual to commence life, with the thorough conviction that the higher sentiments are the superior powers, and that they ought to be the sources of his actions—the first effect would be to cause him to look habitually outward on other men and on his Creator, instead of looking inward on himself as the object of his highest and chief regard. Benevolence would infuse into his mind the feeling that there are other human beings as dear to the Creator and as much entitled to enjoyment as himself; and that his duty is to seek no gratification to himself which is calculated to prove injurious to them, but, on the contrary, to act so as to confer on them, by his daily exertions, all the services in his power: Veneration would give a strong feeling of reliance on the power and wisdom of God, that such conduct would conduce to the highest gratification of all his faculties; it would add also an habitual respect for his fellow men, as beings deserving his regard, and to whose reasonable wishes he was bound to yield a willing and sincere obedience: Lastly, Conscientiousness would prompt him habitually to restrain his animal desires, so as to prevent the slightest abuse of them which would prove injurious to his fellow men.

Let us trace, then, the effect which these principles would produce in ordinary life. Suppose a friendship formed by such an individual: one of his fundamental principles being Benevolence, which inspires with a pure and disinterested regard for other men, he would desire his friend's welfare for his friend's sake. Next, Veneration, acting along with intellect, would reinforce this love, by the conviction that it was entirely conformable to the law of God, and would be acceptable in his sight. It would also add a habitual deference towards the friend himself, which would render the manner pleasing to him, and the deportment yielding and accommodating in all things proper to be forborne or done. Thirdly, Conscientiousness, ever on the watch, would proclaim the duty of making no unjust demands on the good nature of a friend, but of limiting the whole intercourse with him to an interchange of kindness, good offices, and reciprocal affection. Intellect, acting along with these principles, would point out, as an indispensable requisite to such an attachment, that the friend himself should be so far under the influence of the moral sentiments as to be able, in some degree, to satisfy them; for if he were immoral, selfish, vainly ambitious, or, in short, under the habitual influence of the propensities, the sentiments could not love and respect him: they might pity him as unfortunate, but love him they could not, because this is impossible by the very laws of their constitution.

Let us now attend to the degree in which such a friendship would gratify the lower propensities. In the first place, how would Adhesiveness exult and rejoice in such an attachment! It would be filled with delight, because, if the intellect were convinced that the friend habitually acknowledged the supremacy of

the higher sentiments, Adhesiveness might pour forth all its ardour, and cling to its object with the closest bonds of affection. The friend would not encroach on us for evil, because his Benevolence and Justice would oppose this; he would not lay aside restraint, and break through the bonds of affection by undue familiarity, because Veneration would forbid this; he would not injure us in our name, person, or reputation, because Conscientiousness, Veneration, and Benevolence, all combined, would prevent such conduct. Here, then, Adhesiveness, freed from the fear of evil, of deceit, and of dishonour (because such a friend could not possibly fall into dishonour), would be at liberty to take its deepest draught of affectionate attachment; it would receive a gratification which it is impossible it could attain while acting in combination with the purely selfish faculties. What delight, too, would such a friendship afford to Self-Esteem and Love of Approbation! There would be a legitimate approval of ourselves, arising from a survey of pure motives and just and benevolent actions. Love of Approbation, also, would be gratified in the highest degree; for every act of affection, every expression of esteem, from such a friend, would be so purified by Benevolence, Veneration, and Conscientiousness, that it would form the legitimate food on which Love of Approbation might feast and be satisfied: it would fear no hollowness beneath, no tattling in absence, no secret smoothing over for the sake of mere effect, no envyings, no jealousies. In a word, friendship founded on the higher sentiments as the ruling motives, would delight the mind with gladness and sunshine, and gratify all the faculties, animal, moral, and intellectual, in harmony with each other.

By this illustration, the reader will understand more clearly what I mean by the harmony of the faculties. The fashionable and commercial friendships of which I spoke gratified the propensities of Adhesiveness, Love of Approbation, Self-Esteem, and Acquisitiveness, but left out, as fundamental principles, all the higher sentiments:—there was, therefore, in these instances, a want of harmonious gratification to the whole faculties, which want gave rise to a feeling of uncertainty, and of the absence of full satisfaction; it permitted only a mixed and imperfect enjoyment while the friendship lasted, and led to a feeling of painful disappointment, or of vanity and vexation, when a rupture occurred. The error, in such cases, consists in founding attachment on the lower faculties, seeing that they, by themselves, are not calculated to form a stable basis of affection; instead of building it on them and the higher sentiments, which, acting together, afford a foundation for real, lasting, and satisfactory friendship. In complaining of the hollowness of attachments springing from the lower faculties exclusively, we are like men who should try to build a pyramid on its smaller end, and then speak of the unkindness of Providence, and lament the hardness of their fate, when it fell. A similar analysis of all other pleasures founded on the animal propensities chiefly, would exhibit similar results. Happiness, therefore, must be viewed by men as connected with the exercise of the three great classes of faculties; the moral sentiments and intellect exercising the directing and controlling sway, before it can be permanently attained.

Many men, on arriving at the close of life, complain of all its pursuits and enjoyments having proved vanity and vexation of spirit; but, to my mind, this is just an intimation that the plan of their lives has been selfish, that they have missed the right method of doing good, and that they have sought for pleasure, not in the legitimate use, but in foolish abuses of their faculties. I cannot conceive that the hour of death should cause the mind to feel all acts of kindness done to others—all exercises of devotion performed in a right spirit—all deeds of justice executed—all rays of knowledge disseminated—during life, as vain, unprofitable, and unconsoling, even at the moment of our leaving for ever this sublunary scene. On the contrary, such actions appear to me to be those which the mind would then rejoice to pass in review, as having afforded real enjoyment, and left behind us the greatest permanent benefits to our fellow men.

SECT. V.—THE FACULTIES OF MAN COMPARED WITH EXTERNAL OBJECTS.

Having considered man as a *physical* being, and briefly adverted to the adaptation of his constitution to the physical laws of creation; having viewed him as an *organised* being, and traced the relations of his organic structure to his external circumstances; having taken a rapid survey of his *faculties* as an animal, moral, and intellectual being—with their uses and the forms of their abuses; and having contrasted these faculties with each other, and discovered the supremacy of the Moral Sentiments and Intellect; I proceed to compare his faculties with *external objects*, in order to discover what provision has been made for their gratification.

AMATIVENESS is a feeling obviously necessary for the continuance of the species; and one which, properly regulated, is not offensive to reason:—opposite sexes exist to provide for its gratification.*

PHILOPROGENITIVENESS is given—and offspring exist.

CONCENTRATIVENESS is conferred—and the other faculties are its objects.

ADHESIVENESS is given—and country and friends exist.

COMBATIVENESS is bestowed—and physical and moral obstacles exist, to meet and subdue which, courage is necessary.

DESTRUCTIVENESS is given—and man is constituted with a carnivorous stomach, and animals to be killed and eaten exist. Besides, the whole combinations of creation are in a state of decay and renovation. In the animal kingdom almost every species of creature is the prey of some other; and the faculty of Destructiveness places the human mind in harmony with this order of creation. Destruction makes way for renovation; the act of renovation furnishes occasion for the activity of our other powers; and activity is pleasure. That destruction is a natural institution, is unquestionable. Not only has nature taught the spider to construct a web for the purpose of ensnaring flies that it may devour them, and constituted beasts of prey with carnivorous teeth, but she has formed even plants, such as the Drosera, to catch and kill flies, and use them for food. Destructiveness is also the source of resentment and indignation—a most important defensive as well as vindicatory purpose. It is a check upon undue encroachment, and tends to constrain mankind to pay regard to the rights and feelings of each other. When properly regulated, it is an able assistant to justice.

CONSTRUCTIVENESS is given—and materials for constructing artificial habitations, raiment, ships, and various other fabrics that add to the enjoyment of life, are the objects which give it scope.

ACQUISITIVENESS is bestowed—and property exists, capable of being collected, preserved, and applied to use.

SECRETIVENESS is given—and the manifestations of our faculties require to be restrained, until fit occasions and legitimate objects present themselves for their gratification; which restraint is rendered not only possible but agreeable, by the propensity in question. While we suppress our emotions, ideas, designs, or opinions, and confine them within the limits of our own consciousness, we exercise and gratify this faculty in the very act of doing so.

SELF-ESTEEM is given—and we have an individual existence and individual interests, as its objects.

LOVE OF APPROBATION is bestowed—and we are surrounded by our fellow men, whose good opinion is the object of its desire.

* The nature and sphere of activity of the phrenological faculties is explained at length in the "System of Phrenology," to which I beg leave to refer. Here I can only indicate general ideas

CAUTIOUSNESS is admirably adapted to the nature of the external world. The human body is combustible, is liable to be destroyed by violence, to suffer injury from extreme wet and winds, &c.; and it is necessary for us to be habitually watchful to avoid these sources of calamity. Accordingly, Cautiousness is bestowed on us as an ever-watchful sentinel, constantly whispering "Take care." There is ample scope for the legitimate and pleasurable exercise of all our faculties, without running into these evils, provided we know enough, and are watchful enough; and therefore Cautiousness is not overwhelmed with inevitable terrors. It serves merely as a warder to excite us to beware of sudden and unexpected danger; it keeps the other faculties at their post, by furnishing a stimulus to them to observe and to trace consequences, that safety may be insured; and when these other faculties do their duty in proper form, the impulses of Cautiousness, instead of being painful, are the reverse: they communicate a feeling of safety, which is exceedingly agreeable. Hence this faculty appears equally benevolent in its design, as the others which we have contemplated. It is clear that the gift of an organ of Cautiousness implied that man was to be placed in a field of danger. It is adapted to a world like the present, but would be at variance with a scene into which no evil could intrude.

Here, then, we perceive a beautiful provision made for supporting the activity of the lower propensities, and affording them legitimate gratification. These powers are conferred on us clearly to support our animal nature, and to place us in harmony with the external objects of creation. Far from being injurious or base in themselves, they possess the dignity of utility, and are sources of high enjoyment, when legitimately indulged. The phrenologist, therefore, would never seek to extirpate them, or to weaken them too much. He desires only to see their excesses controlled, and their exercise directed in accordance with the great institutions and designs of the Creator. Theologians who enforce the corruption of human nature, would do well to consider whether man as originally constituted possessed the organs of these propensities or not. If he did possess them, it will be incumbent on them to show the objects of them in a world where there was no sorrow, sin, death, or danger. If these organs were bestowed only after the fall, the question will remain to be solved, whether man with new organs added to his brain, and new propensities to his mind, continued the same being, as when these did not form parts of his constitution. Or, finally, they may consider whether the existence of these organs, and of an external world adapted to them, does not prove that man, as he now exists, is actually the same being as when he was created, and that his corruption consists in his tendency to abuse his faculties, and not in any inherent viciousness attributable to his nature itself.

The next class of faculties is that embracing the Moral Sentiments proper to man. These are the following:—

BENEVOLENCE is given—and sentient and intelligent beings are created, whose happiness we are able to increase, thereby affording it scope and delight. It is an error to imagine that creatures in misery are the only objects of benevolence, and that it has no function but to experience pity. It is a wide-spreading fountain of generous feeling, desiring for its gratification not only the removal of pain, but the maintenance and augmentation of positive enjoyment; and the happier it can render its objects, the more complete are its satisfaction and delight. Its exercise, like that of all the other faculties, is a source of great pleasure to the individual himself; and nothing can be conceived more admirably adapted for affording it exercise, than the system of creation exhibited on earth. From the nature of the human faculties, each individual, without injuring himself, has it in his power to confer prodigious benefits, or, in other words, to pour forth the most copious streams of benevolence on others, by legitimately gratifying their various feelings and intellectual faculties.

VENERATION.—The highest object of this faculty is the Divine Being; and I assume here the existence of God as capable of demonstration. The very essay in which I am now engaged, is an attempt at an exposition of some of his attributes, as manifested in this world. If we find wisdom and benevolence in his works, unchangeableness and no shadow of turning in his laws, perfect harmony in each department of creation; and if we shall discover that the evils which afflict us are much less the direct objects of his arrangements than the consequences of ignorant neglect of institutions intended for our enjoyment—then we shall acknowledge in the Divine Being an object whom we may love with all our soul, and reverence with the deepest emotions of veneration, and on whom Hope and Conscientiousness may repose with a perfect and unhesitating reliance. The exercise of this sentiment is in itself a great positive enjoyment, when the object is in harmony with our other faculties. Further, its activity disposes us to yield obedience to the Creator's laws, the object of which is our own happiness; and hence its exercise, in the highest degree, is provided for. Revelation unfolds the character and intentions of GOD where reason cannot penetrate.

HOPE is given—and our understanding, by discovering the laws of nature, is enabled to penetrate into the future. This sentiment, then, is gratified by the absolute reliance which Causality convinces us we may place on the stability and wisdom of the divine arrangements: its legitimate exercise, in reference to this life, is to give us a vivifying faith that good is attainable if we use the proper means, and that while we suffer evil we are undergoing a chastisement for having neglected the institutions of the Creator, the object of which punishment is to urge us back into the right path. It is a very powerful alleviator of our afflictions. Revelation presents to Hope the certainty of a life to come, and directs all our faculties in points of Faith.

IDEALITY is bestowed—and not only is external nature invested with the most exquisite loveliness, but a capacity for moral and intellectual refinement is given to us, by which we may rise in the scale of excellence, and, at every step of our progress, reap direct enjoyment from this sentiment. Its constant desire is for "something more exquisite still." In its own immediate impulses it is delightful, and external nature and our own faculties respond to its call.

WONDER prompts us to admiration, and desires something new. When we contemplate man endowed with intellect to discover a Deity and to comprehend his works, we cannot doubt that Wonder is provided with objects for its intensest exercise; and when we view him placed in a world where old things are constantly passing away, and a system of renovation is incessantly proceeding, we see at once how vast a provision is made for the gratification of his desire of novelty, and how admirably it is calculated to impel his other faculties to action.

CONSCIENTIOUSNESS exists—and it has a wide field of exercise in regulating the rights and interests of the individual in relation to other men and to society. The existence of selfish propensities and disinterested emotions, demands a power to arbitrate between them, and to regulate both, and such is the sentiment of Conscientiousness. To afford it full satisfaction, it is necessary to prove that all the divine institutions are founded in justice. This is a point which many regard as involved in much obscurity; I shall endeavour in this essay to lift the veil in part, for to me justice appears to flow through every divine institution.

One difficulty, in regard to Conscientiousness, long appeared inexplicable; it was, how to reconcile with benevolence the institution by which this faculty visits us with remorse, *after* offences are actually committed, instead of arresting our hands by an irresistible veto

before sinning, so as to save us from the perpetration altogether. The problem is solved by the principle, That happiness consists in the activity of our faculties, and that the arrangement of punishment after the offence, is far more conducive to activity than the opposite. For example: if we desired to enjoy the highest gratification in exploring a new country, replete with the most exquisite beauties of scenery and the most captivating natural productions; and if we found in our path precipices that gratified Ideality in the highest degree, but which endangered life when, neglecting the law of gravitation, we advanced so near as to fall over them; whether would it be more bountiful in Providence to send an invisible attendant with us, who, whenever we were about to approach the brink, should interpose a barrier, and fairly cut short our advance, without requiring us to bestow one thought upon the subject, and without our knowing when to expect it and when not;—or to leave all open, but to confer on us, as he has done, eyes fitted to see the precipice, faculties to comprehend the law of gravitation, and Cautiousness to make us fear the infringement of it—and then to leave us to enjoy the scene in perfect safety if we used these powers, but to fall over and suffer pain or death if we neglected to exercise them? It is obvious that the latter arrangement would give far more scope to our various powers; and if active faculties are the sources of pleasure, as will be shown in the next chapter, then it would contribute more to our enjoyment than the other. Now, Conscientiousness punishing after the fact is analogous, in the moral world, to this arrangement in the physical. If Intellect, Benevolence, Veneration, and Conscientiousness, do their parts, they will give intimations of disapprobation before the commission of offences, just as Cautiousness will give intimations of danger at the sight of the cliff; but if these are disregarded, and we fall over the moral precipice, remorse will follow as a punishment, just as pain is the chastisement for tumbling over the physical brink. The object of both institutions is to permit and encourage the most vigorous and unrestrained exercise of our faculties, in accordance with the physical, moral, and intellectual laws of nature, and to punish us only when we transgress these limits.

Firmness is bestowed—and the other faculties of the mind are its objects. It supports and maintains their activity, and gives determination to our purposes.

Imitation is bestowed—and every where man is surrounded by beings and objects whose actions and appearances it may benefit him to copy.

The next Class of Faculties is the Intellectual.

The provisions in external nature for the gratification of the *Senses* of Hearing, Seeing, Smelling, Taste, and Feeling, are so obvious, that it is unnecessary to enlarge upon them.

Individuality and Eventuality, or the powers of observing things that exist, and occurrences, are given—and "all the truths which Natural Philosophy teaches, depend upon *matter of fact*, and that is learned by observation and experiment, and never could be discovered by reasoning at all." Here, then, is ample scope for the exercise of these powers.

Form, Size, Weight, Locality, Order, and Number, are bestowed—and the sciences of Geometry, Arithmetic, Algebra, Geography, Navigation, Botany, Mineralogy, Zoology, Anatomy, and various others, are the fields of their exercise. The first three sciences are almost the entire products of these faculties; the others result chiefly from them, when applied on external objects.

Colouring, Time, and Tune, are given—and these, aided by Constructiveness, Form, Size, Ideality, and other faculties, find scope in Painting, Sculpture, Poetry, Music, and the other fine arts.

Language is given—and our faculties inspire us with lively emotions and ideas, which we desire to communicate by its means to other individuals.

Comparison and Causality exist, and these faculties, aided by Individuality, Form, Size, Weight, and others already enumerated, find ample gratification in Natural Philosophy, and in Moral, Political, and Intellectual Science. The general objects and affairs of life, together with our own feelings, conduct, and relations, are also the objects of the knowing and reflecting faculties, and afford them vast opportunities for exercise.

CHAPTER III.

ON THE SOURCES OF HUMAN HAPPINESS, AND THE CONDITIONS REQUISITE FOR MAINTAINING IT.

All enjoyment arises from activity of the different parts of the human constitution—Creation so arranged as to invite and encourage exercise of the bodily and mental powers—The acquisition of knowledge agreeable—Would intuitive knowledge be more advantageous to man, than the mere capacity which he actually has to acquire knowledge by his own exertions?—Reasons for answering this question in the negative—To reap enjoyment in the greatest quantity, and maintain it most permanently, the faculties must be gratified in harmony with each other—Reasons for believing that the laws of external creation will, in the progress of discovery, be found accordant with the dictates of the moral sentiments.

Having now given a rapid sketch of the constitution of man, and its relations to external objects, we are prepared to inquire into the sources of his happiness, and the conditions requisite for maintaining it.

The *first* and most obvious circumstance which attracts attention is, that all enjoyment must necessarily arise from *activity* of the various systems of which the human constitution is composed. The bones, muscles, nerves, and digestive and respiratory organs, furnish pleasing sensations, directly or indirectly, when exercised in conformity with their nature; and the external senses and internal faculties, when excited, supply the whole remaining perceptions and emotions, which, when combined, constitute life and rational existence. If these were habitually buried in sleep, or constitutionally inactive, life, to all purposes of enjoyment, might as well be extinct: Existence would be reduced to mere vegetation, without consciousness.

If, then, wisdom and benevolence have been employed in constituting man, we may expect the arrangements of creation, in regard to him, to be calculated, *as a leading object, to excite* his various powers, corporeal and mental, to *activity*. This, accordingly, appears to me to be the case; and the fact may be illustrated by a few examples. A certain portion of nervous and muscular energy is infused by nature into the human body every twenty-four hours, which it is delightful to expend. To provide for its expenditure, the stomach has been constituted so as to require regular supplies of food, which can be obtained only by nervous and muscular exertion; the body has been created destitute of covering, yet standing in need of protection from the elements of heaven; and nature has been so constituted, that raiment can be easily provided by moderate exercise of the mental and corporeal powers. It is delightful to repair exhausted nervous and muscular energy by wholesome aliment; and the digestive organs have been so constituted as to afford us frequent opportunities of enjoying the pleasures of eating. In these arrangements, the design of supporting the various systems of the body in activity, for the enjoyment of the individual, is abundantly obvious. A late writer justly remarks, that "a person of feeble texture and indolent habits has the bone smooth, thin, and light; but nature, solicitous for our safety, and in a manner which we could not anticipate, combines with the powerful muscular frame a dense and perfect texture of bone, where every spine and tubercle is completely developed." "As the structure of the parts is originally perfected by the action of the vessels, the function or operation of

the part is made the stimulus to those vessels. The cuticle on the hand wears away like a glove ; but the pressure stimulates the living surface to force successive layers of skin under that which is wearing, or, as anatomists call it, desquamating ; by which they mean, that the cuticle does not change at once, but comes off in squamæ or scales."

Directing our attention to the Mind, we discover that Individuality, and the other Perceptive Faculties, desire, as *their* means of enjoyment, to become acquainted with external objects ; while the Reflecting Faculties long to know the dependencies and relations of all objects and beings. "There is something," says an eloquent writer "positively agreeable to all men, to all at least whose nature is not most grovelling and base, in gaining knowledge for its own sake. When you see any thing for the first time, you at once derive some gratification from the sight being new ; your attention is awakened, and you desire to know more about it. If it is a piece of workmanship, as an instrument, a machine of any kind, you wish to know how it is made, how it works, and what use it is of. If it is an animal, you desire to know where it comes from, how it lives, what are its dispositions, and, generally, its nature and habits. This desire is felt, too, without at all considering that the machine or the animal may ever be of the least use to yourself practically ; for, in all probability, you may never see them again. But you feel a curiosity to learn all about them, *because they are new and unknown to you.* You accordingly make inquiries ; you *feel a gratification* in getting answers to your questions, that is *in receiving information*, and in knowing more—in being better informed than you were before. If you ever happen again to see the same instrument or animal, you find it agreeable to recollect having seen it before, and to think that you know something about it. If you see another instrument or animal, in some respects like, but differing in other particulars, you find it pleasing to *compare them together*, and to note in what they agree and in what they differ. Now, all this kind of gratification is of a pure and disinterested nature, and has no reference to any of the common purposes of life ; yet it is a pleasure—an enjoyment. You are nothing the richer for it ; you do not gratify your palate, or any other bodily appetite ; and yet it is so pleasing that you would give something out of your pocket to obtain it, and would forego some bodily enjoyment for its sake. The pleasure derived from science is exactly of the like nature, or, rather, it is the very same."* This is a correct and forcible exposition of the pleasures attending the active exercise of our intellectual faculties. In the introduction to this work, I have given several illustrations of the manner in which the external world is adapted to the mental faculties of man, and of the extent to which it is calculated to maintain them in activity, and I need not repeat them here.

Supposing the human faculties to have received their present constitution, two arrangements for their gratification may be fancied : 1st, Infusing into the intellectual powers, at birth, *intuitive knowledge* of every object which they are fitted ever to comprehend ; and directing every propensity and sentiment by an infallible instinct to its best mode and degree of gratification : Or, 2*dly*, Constituting the intellectual faculties only as *capacities* for gaining knowledge by exercise and application, and surrounding them with objects bearing such relations towards them, that, when these objects and relations are observed and attended to, high gratification shall be obtained, and, when they are unobserved and neglected, the result shall be uneasiness and pain ; giving at the same time to each propensity and sentiment a wide field of action, comprehending both use and abuse, and leaving the intellect to direct each to its proper objects, and to regulate its degrees of indulgence. And the question occurs, Which of these modes would be more conducive to enjoyment ? The general opinion will be in favour of the first ; but the second appears to me to be preferable. If the first meal we had eaten had for ever prevented the recurrence of hunger, it is obvious that all the pleasures of satisfying a healthy appetite would then have been at an end ; so that this apparent bounty would have greatly abridged our enjoyment. In like manner, if (our faculties being constituted as at present) unerring desire had been impressed on the propensities and sentiments, and intuitive knowledge had been communicated to the understanding, so that, when an hour old, we should have been, morally, as wise and virtuous, and, intellectually, as thoroughly instructed as we could ever become, all provision for the sustained activity of our faculties would have been done away with. When wealth is acquired, the miser's pleasure in it is diminished. He grasps after *more* with increasing avidity. He is supposed irrational in doing so ; but he obeys the instinct of his nature. What he possesses no longer satisfies Acquisitiveness. The miser's pleasure arises from the *active state* of this faculty, and only the pursuit and obtaining of *new treasures* can *maintain that state.* The same law is exemplified in the case of Love of Approbation. The enjoyment which it affords depends on its *active state ;* and hence the necessity for *new incense*, and for *mounting higher* in the scale of ambition, is constantly felt by its victims. Napoleon, in exile, said, "Let us live upon the past ;" but he found this impossible : his predominant desires originated in Love of Approbation and Self-Esteem, and the past did not stimulate them, or maintain them in constant activity. In like manner, no musician, artist, poet, or philosopher, would reckon himself happy, however extensive his attainments, if informed, "Now you must stop and live upon the past ;" and the reason is still the same ; the pursuit of new acquirements, and the discovery of new fields of investigation, excite and maintain the faculties in activity ; and activity is enjoyment.

If these views be correct, the consequences of imbuing the mind, as at present constituted, with intuitive knowledge, and instinctive direction as to conduct, would not have been unquestionably beneficial. The limits of our experience and acquirements would have been speedily reached ; our first step would have been our last ; every object would have become old and familiar ; Hope would have had no object of expectation, Cautiousness no object of fear, Wonder no gratification in novelty ; and monotony, insipidity, and mental satiety, would apparently have been the lot of man.

According to the view now advanced, creation, in its present form, is more wisely and benevolently adapted to our constitution than if instinctive direction and intuitive instruction had been given to the mind at birth. By the actual arrangement, numerous noble faculties are bestowed, and their objects are presented : these objects are endowed with qualities fitted to benefit and delight us, when properly used, and to injure and punish us when misunderstood or misapplied ; but we are left to find out their qualities by the exercise of our own powers. Provision is thus made for ceaseless activity of the mental faculties, and this constitutes delight. Wheat is produced by the earth, and adapted to the nutrition of the body ; but it may be rendered more grateful to taste, more salubrious to the stomach, and more stimulating to the nervous and muscular systems, by being stripped of its external skin, ground into flour, and baked. Now, when the Creator endowed wheat with its properties, and the human body with its qualities and functions, he pre-arranged all these relations. In withholding congenital and intuitive knowledge of them, but in bestowing faculties fitted to find them out ; in rendering the exercise of these faculties agreeable ; and in leaving man, in this condition, to act for himself—he appears to me to have conferred on him the highest boon. The earth produces also hemlock and foxglove ; and, by the organic law, those substances, if taken in

* Objects, Advantages, and Pleasures of Science, p. 1.

certain moderate qualities, remove diseases; if in excess, they occasion death: but man's observing faculties, when acting under the guidance of Cautiousness and Reflection, are fitted to make this discovery: and he is left to make it in this way, or suffer the consequences of neglect.

Water, when elevated in temperature, becomes steam; steam expands with prodigious power; and this power, confined by metal and directed by intellect, is capable of being converted into the steam-engine, the most efficient yet most humble servant of man. All this was clearly pre-arranged by the Deity, and man's faculties were adapted to it at creation; but he was left to observe and discover the qualities and relations of water for himself. This duty, however, must be acknowledged to have been benevolently imposed, the moment we perceive that the Creator has made the very exercise of the faculties agreeable, and arranged the qualities and relations of matter so beneficially, that, when known, they carry a double reward to the discoverer—the pleasure of mental exercise, and positive advantage derived from the objects themselves.

The Knowing Faculties, as we have seen, observe merely the qualities of bodies, and their simpler relations. The Reflecting Faculties observe relations also, but of a higher order. The former, for example, discover that the soil is clay or gravel; that it is tough or friable; that it is dry or wet; that excess of water impedes vegetation; that in one season the crop is large, and in the next deficient. The reflecting faculties take cognisance of the *causes* of these phenomena; and acting along with the knowing powers, they discover the *means* by which wet soil may be rendered dry, clay pulverised, light soil invigorated, and all of them made more productive; and also the relationship of particular soils to particular kinds of grain. Nations that exert their knowing faculties in observing the qualities of the soil, and their reflecting faculties in discovering its capabilities, and its relations to water, lime, manures, and the various species of grain—and who put forth their muscular and nervous energies in accordance with the dictates of these powers—receive a rich reward in a climate improved in salubrity, and an abundant supply of food, besides much positive enjoyment attending the exercise of the powers themselves. Those communities, on the other hand, who neglect to use their mental faculties, and muscular aud nervous energies, are punished by ague, fever, rheumatism, and a variety of painful affections arising from damp air; they are stinted in food, and in wet seasons are brought to the very brink of starvation by serious failures of their crops. This punishment is a benevolent admonition from the Creator, that they are neglecting a great duty, and omitting to enjoy a great pleasure; and it will cease as soon as, by obeying the Divine laws, they have fairly redeemed the blessings lost by their negligence.

The winds and waves appear, at first sight, to present insurmountable obstacles to man's leaving the island or continent on which he happens to be born, and to his holding intercourse with distant climes: But, by observing the relations of water to timber, he is enabled to construct a ship; by observing the influence of the wind on a body placed in a fluid medium, he discovers the use of sails; and, lately, he has found out the expansive quality of steam, and traced its relations until he has produced a machine that enables him almost to set the roaring tempest at defiance, and to sail straight to the stormy north, although its loudest and its fiercest blasts oppose. All these capabilities were conferred on nature and on man, long before they were practically applied; but now that we have advanced so far in our career of discovery and improvement, we perceive the scheme of creation to be admirably adapted to support the mental faculties in habitual activity, and to reward us for the exercise of them.

In surveying external nature with this principle in view, we perceive in many qualities of physical objects clear indications of benevolent design, which otherwise would be regarded as defects. The Creator obviously intended that man should discover and use coal-gas in illuminating dwelling-houses; and yet it emits an abominable odour. The bad smell, viewed abstractedly from its consequences, would appear to be an unfortunate quality of gas; but when we recollect that it is invisible, extremely subtle and liable to escape, and also, when mixed in a certain proportion with atmospheric air, to explode—and that the nauseous and penetrating smell is like a voice attached to it, proclaiming its escape, and warning us, in louder and louder tones, to attend to our safety by confining it—it presents the aspect of wise and benevolent design. Gas stood in this relation to the olfactory nerves from the creation downwards, although it was long unknown to men. We cannot doubt that the discovery and application of it by them was contemplated by the Creator from the first. A few years ago, on hearing Paganini play on the violin, the subject of wonder with me was the exquisite fineness of his notes. The sounds fell on the ear as if their cause had been purely etherial. No indication of their material origin could be traced. An angel might be imagined to send forth such strains to mortal ears. The extraordinary developement of Paganini's organs of Tune and Time, with the extreme sensibility of his nervous system strongly indicated in his countenance and figure, seem to have been the causes of his attaining this high degree of power. In reflecting on his performance, the idea forcibly struck me, that until a being constituted like Paganini appeared, we had no means of discovering what exquisite sounds the material substances composing a violin and bow were capable of emitting, and that a similar reflection may probably be applicable to the entire sublunary creation. This world may be full of divine qualities and delicious harmonies, if we had only superior men to bring them into view! And if the case be so, how truly admirable is that constitution of nature, which furnishes us with every possible inducement not only to study itself, but to improve our own qualities; and which presents us with richer treasures, the farther we advance in the discharge of our most pleasing and profitable duties!

It is objected to this argument, that it involves an inconsistency. Ignorance of the natural laws, it is said, is represented as necessary to happiness, in order that the faculties may obtain exercise in discovering and obeying them; nevertheless, happiness is held to be impossible till these laws shall have been discovered and obeyed: here then, it is said, ignorance is represented as at once *essential to*, and *incompatible with*, enjoyment. But this is not an accurate representation of the doctrine. I do not say that, in any individual man, ignorance of the natural laws is essential to enjoyment; I merely maintain, that with his present constitution it was more beneficial for him to be left to learn these laws from his parents or his own experience, than at birth to have received intuitive knowledge of all the objects of creation. A similar objection might be stated to the constitution of the bee. Honey is necessary to its enjoyment; yet it has been left to gather honey for itself. The fallacy lies in losing sight of the natural constitution both of the bee and of man. The bee has been furnished with instinctive tendencies to roam about the fields and flowery meadows, and to exert its energies in labour; and it is obviously beneficial to it to be provided with opportunities of doing so. And so it is with man. Gathering knowledge is to the human mind what gathering honey is to the bee. Communicating intuitive knowledge of the natural laws to man, *while his present constitution continues*, would be the exact parallel of naturally gorging the bee with honey during the whole summer, when its energies are at their height. When the bee has completed its store, winter benumbs its powers, which resume their vigour only when its stock is exhausted, and when spring returns to afford them exercise. No torpor resembling that of winter seals up the faculties of the

human race; but their ceaseless activity is amply provided for by other arrangements: *First*, Every individual of the race is born in utter ignorance, and starts from zero in the scale of knowledge, so that he has the laws to learn for himself either from his predecessors or from experience; *Secondly*, The laws of nature, compared with the mental capacity of any individual, are of boundless extent, so that every one may learn something new to the end of the longest life; *Thirdly*, By the actual constitution of man, he must make use of his acquirements habitually, otherwise he will lose them.

These circumstances remove the apparent inconsistency. If man had possessed intuitive knowledge of all nature, he could have had no scope for exercising his faculties in *acquiring* knowledge, in *preserving* it, or in *communicating* it. The infant would have been as wise as the most revered sage, and forgetfulness would have been necessarily excluded.

Some who object to these views, imagine that after the human race has acquired knowledge of all the natural laws, if such a result be possible, they *will be in the same condition as if they had been created with intuitive knowledge.* But this does not follow. Although the *race* should acquire the knowledge supposed, it is not an inevitable consequence that *each individual* will necessarily enjoy it all; which, however, would follow from intuition. The entire soil of Britain belongs to the landed proprietors as a class; but each does not possess it *all*, and hence every one has opportunities of adding to his territories—with this disadvantage, however, in comparison with knowledge, that the acquisitions of one necessarily diminish the possessions of another. Further, although the race should have learned all the natural laws, their children would not intuitively inherit their ideas, and thus the activity of every one, as he appeared on the stage, would be provided for; whereas, by intuition, every child would be as wise as his grandfather—and parental protection, filial piety, and all the delights that spring from difference in knowledge between youth and age, would be excluded. Lastly, By the actual state of man, the *using* of acquirements is essential to the preservation as well as the enjoyment of them. By intuition, all knowledge would be habitually present to the mind without effort or consideration. On the whole, therefore, it appears that (man's nature being what it is) the arrangement by which he is endowed with powers to acquire knowledge, but left to find it for himself, is both wise and benevolent.

It has been asked, "But is there no pleasure in science except that of discovery? Is there none in using the knowledge we have attained? Is there no pleasure in playing at chess after we know the moves?" In answer, I observe, that if we knew beforehand all the moves that our antagonist intended to make and all our own, which must be the case if we knew *every thing* by intuition, we could have no pleasure. The pleasure really consists in discovering the intentions of our antagonist, and in calculating the effects of our own play; a certain degree of ignorance of both of which is indispensable to gratification. In like manner, it is agreeable first to discover the natural laws, and then to study the *moves* that we ought to make, in consequence of knowing them. So much, then, for the *sources* of human happiness.

In the *second* place, To reap enjoyment in the *greatest quantity* and to maintain it *most permanently*, the faculties must be gratified *harmoniously*: In other words, if, among the various powers, the *supremacy* belongs to the moral sentiments, then the aim of our habitual conduct must be the attainment of objects suited to gratify them. For example, in pursuing wealth or fame as the leading object of existence, full gratification is not afforded to Benevolence, Veneration, and Conscientiousness, and consequently complete satisfaction cannot be enjoyed; whereas, by seeking knowledge, and dedicating life to the welfare of mankind, and obedience to God, in our several vocations, these faculties will be gratified, and wealth, fame, health, and other advantages, will flow in their train, so that the whole mind will rejoice, and its delight will remain permanent.

Thirdly, To place human happiness on a secure basis, the laws of external creation must themselves accord with the dictates of the moral sentiments, and intellect must be fitted to discover the nature and relations of both, and to direct the conduct in harmony with them.

Much has been written concerning the extent of human ignorance: but we should discriminate between absolute incapacity to know, and mere want of information, arising from not having used this capacity to its full extent. In regard to the first—our capacity to know—it appears probable that, in this world, we shall never know the essence, beginning, or end of things; because these are points which we have no faculties calculated to discover: But the same Creator who made the external world constituted our faculties; and if we have sufficient data for inferring it to be His intention that we shall *enjoy* existence here while preparing for the ulterior ends of our being—and if it be true that we can be happy here, only by becoming thoroughly conversant with those natural laws which are pre-arranged to contribute, when observed, to our enjoyment, and which, when violated, visit us with suffering—then we may safely conclude that our mental capacities are wisely adapted to the attainment of these objects, whenever we shall do our own duty in bringing them to their highest condition of perfection, and in applying them in the best manner.

Sir Isaac Newton observed that all bodies which refracted the rays of light, were combustible, except one, the diamond, which he found to have this quality, but which he was not able, by any powers he possessed, to consume by burning. He did not conclude, however, from this, that the diamond was an exception to the uniformity of nature. He inferred that, as the same Creator had made the diamond and the refracting bodies which he was able to burn, and proceeded by uniform laws, the diamond also would, in all probability, be found to be combustible, and that the reason of its resisting his power was ignorance on his part of the proper way to produce its conflagration. A century afterwards, chemists made the diamond blaze with as much vivacity as Sir Isaac Newton had done a wax-candle. Let us proceed, then, on an analogous principle. If the intention of our Creator be, that we should enjoy existence while in this world, then he knew what was necessary to enable us to do so; and He will not be found to have failed in conferring on us powers fitted to accomplish His design, provided we do our duty in developing and applying them. The great motive to exertion is the conviction, that increased knowledge will furnish us with increased means of happiness and well-doing, and with new proofs of benevolence and wisdom in the Great Architect of the Universe.

In pleading thus earnestly for the wise and benevolent constitution of the human mind, and the admirable adaptation of external nature to its qualities, I may be causing uneasiness to some readers who have been educated in the belief that human nature is inherently corrupt, and that physical creation is essentially disordered; but, in doing so, I yield to the imperative dictates of what appears to me to be truth. If the views now expounded shall be shown to be fallacious, I shall be most anxious to abandon them; but if they shall prove to be correct interpretations of nature, they will of necessity stand forth in all the might and majesty of divine appointments, and it will be criminal either to conceal or oppose them. If they be true, they will carry vast consequences in their train. I am not rearing a system from ambitious motives, neither is it my object to attack the opinions of other men. It is simply to lift up the veil of ignorance, and, in all humility, to exhibit the Creator's works in their real colours, in as far as I imagine myself to have been permitted to perceive them.

CHAPTER IV.

APPLICATION OF THE NATURAL LAWS TO THE PRACTICAL ARRANGEMENTS OF LIFE.

Suggestion of a scheme of living and occupation for the human race—Every day ought to be so apportioned as to permit of (1) bodily exercise; (2) useful employment of the intellectual powers; (3) the cultivation and gratification of the moral and religious sentiments; (4) the taking of food and sleep—Gratification of the animal faculties included in these—Why has man made so little progress towards happiness?—A reply to this question very difficult—Dr Chalmers quoted on the subject—Has man advanced in happiness in proportion to the increase of his knowledge?—His progress retarded by ignorance of his constitution, and its adaptation to external objects—The experience of past ages affords no sufficient reason for limiting our estimate of man's capability of civilisation—Recent date of some of the most important scientific discoveries, and imperfect condition of most branches of human knowledge.

If a system of living and occupation were to be framed for human beings, founded on the exposition of their nature which I have now given, it would be something like this.

First, So many hours a-day should be dedicated by every individual in health, to the exercise of his nervous and muscular systems, in labour calculated to give scope to their functions. The reward of obeying this requisite of his nature would be health, and a joyous animal existence; the punishment of neglect is disease, low spirits, and premature death.

Secondly, So many hours a-day should be spent in the sedulous employment of the knowing and reflecting faculties; in studying the qualities of external objects, and their relations: also the nature of animated beings, and their relations; with the view not of accumulating mere abstract and barren knowledge, but of enjoying the positive pleasure of mental activity, and of turning every discovery to account, as a means of increasing happiness or alleviating misery. The leading object should always be, to find out the relationship of every object to our own nature, organic, animal, moral, and intellectual, and to keep that relationship habitually in mind, so as to render our acquirements directly gratifying to our various faculties. The reward of this conduct would be an incalculable increase of pleasure, in the very act of acquiring a knowledge of the real properties of external objects, together with a great accession of power in reaping ulterior advantages and avoiding disagreeable affections.

Thirdly, So many hours a-day ought to be devoted to the cultivation and gratification of our moral and religious sentiments; that is to say, in exercising these in harmony with intellect, and especially in acquiring the habit of admiring, loving, and yielding obedience to the Creator and his institutions. This last object is of vast importance. Intellect is barren of practical fruit, however rich it may be in knowledge, until it is fired and prompted to act by moral sentiment. In my view, knowledge by itself is comparatively worthless and impotent, compared with what it becomes when vivified by lofty emotions. It is not enough that Intellect is informed: the moral faculties must co-operate, in yielding obedience to the precepts which the intellect recognises to be true. As creation is one great system, of which God is the author and preserver, we may fairly presume that there must be harmony among all its parts, and between it and its Creator. The human mind is a portion of creation, and its constitution must be included in this harmonious scheme. The grand object of the moral and intellectual faculties of man, therefore, ought to be, the study of God and of his works. Before philosophy can rise to its highest dignity, and shed on the human race its richest benefits, it must become religious; that is to say, its principles and their consequences must be viewed as proceeding directly from the Divine Being, and as a revelation of his will to the faculties of man, for the guidance of his conduct. Philosophy, while separated from the moral feelings, is felt by the people at large to be cold and barren. It may be calculated to interest individuals possessing high intellectual endowments; but as, in general, the moral and religious sentiments greatly predominate in energy over the intellectual powers, it fails to interest the mass of mankind. On the other hand, before natural religion can appear in all its might and glory, it must become philosophical. Its foundations must be laid in the system of creation; its authority must be deduced from the principles of that system; and its applications must be enforced by a demonstration of the power of Providence operating in enforcing the execution of its dictates. While reason and religion are at variance, both are obstructed in producing their full beneficial effects. God has placed harmony between them, and it is only human imperfection and ignorance that introduce discord. One way of cultivating the sentiments would be for men to meet and act together, on the fixed principles which I am now endeavouring to unfold, and to exercise, in mutual instruction, and in united adoration of the great and glorious Creator, the several faculties of Benevolence, Veneration, Hope, Ideality, Wonder, and Conscientiousness. The reward of acting in this manner would be a communication of direct and intense pleasure to each other; for I refer to every individual who has ever had the good fortune to pass a day or an hour with a really benevolent, pious, honest, and intellectual man, whose soul swelled with adoration of his Creator, whose intellect was replenished with knowledge of his works, and whose whole mind was instinct with sympathy for human happiness—whether such a day did not afford him the most pure, elevated, and lasting gratification he ever enjoyed. Such an exercise, besides, would invigorate the whole moral and intellectual powers, and fit them to discover and obey the Divine institutions.

Phrenology is highly conducive to this enjoyment of our moral and intellectual nature. No faculty is bad, but, on the contrary, each has a legitimate sphere of action, and, when properly gratified, is a fountain of pleasure: in short, man possesses no feeling, of the right exercise of which an enlightened and ingenuous mind need be ashamed. A party of thoroughly practical phrenologists, therefore, meet in the perfect knowledge of each other's qualities; they respect these as the gifts of the Creator; and their great object is to derive the utmost pleasure from their legitimate use, and to avoid every approximation to abuse of them. The distinctions of country and education are broken down by unity of principle; the chilling restraints of Cautiousness, Self-Esteem, Secretiveness, and Love of Approbation, which stand as barriers of eternal ice between human beings in the ordinary intercourse of society, are gently removed; the directing sway is committed to Benevolence, Veneration, Conscientiousness, and Intellect; and then the higher principles of the mind operate with a delightful vivacity unknown to persons unacquainted with the qualities of human nature.

Intellect also ought to be regularly exercised in arts, science, philosophy, and observation.

I have said nothing of dedicating hours to the direct gratification of the animal powers; not that they should not be exercised, but that full scope for their activity is included in the employments already mentioned. In muscular exercises, Combativeness, Destructiveness, Constructiveness, Acquisitiveness, Self-Esteem, and Love of Approbation, may all be gratified. In contending with and surmounting physical and moral difficulties, Combativeness and Destructiveness obtain vent: in working at a mechanical employment, requiring the exertion of strength, these two faculties, and also Constructiveness and Acquisitiveness, will be exercised; in emulation who shall accomplish most good, Self-Esteem and Love of Approbation will obtain scope. In the exercise of the

moral faculties, several of these, and others of the animal propensities, are employed; Amativeness, Philoprogenitiveness, and Adhesiveness, for example, acting under the guidance of Benevolence, Veneration, Conscientiousness, Ideality, and Intellect, receive direct enjoyment in the domestic circle. From proper direction also, and from the superior delicacy and refinement imparted to them by the higher powers, they do not infringe the moral law, and leave no sting or repentance in the mind.

Finally, a certain portion of time would require to be dedicated to the taking of food and sleep.

All systems hitherto practised have been deficient in providing for one or more of these branches of enjoyment. In the community at Orbiston, formed on Mr Owen's principles, music, dancing, and theatrical entertainments, were provided; but the people soon tired of these. They had not corresponding moral and intellectual instruction. The novelty excited them, but there was nothing substantial behind. In common society, very little of either rational instruction or amusement is provided. The neglect of innocent amusement is a great error.

If there be truth in these views, they will throw some light on two important questions that have embarrassed philosophers, in regard to the progress of human improvement. The first is, Why should man have existed so long, and made so small an advance in the road to happiness? It is obvious, that the very scheme of creation which I have described, implies that man is a progressive being; and progression necessarily supposes lower and higher conditions of attainment and enjoyment. While men are ignorant, there is great individual suffering. This distresses sensitive minds, and seems inexplicable: they cannot conceive how improvement should so slowly advance. I confess myself incapable of affording any philosophical explanation why man should have been so constituted; neither can I give a reason why the whole earth was not made temperate and productive, in place of being partially covered with regions of barren sand and eternal snow. The Creator alone can explain these difficulties. When the inhabitants of Britain wore the skins of animals, and lived in huts, we may presume that, in rigorous winters, many of them suffered severe privations, and that some would perish from cold. If there had been among the sufferers a gifted philosopher, who observed the talents that were inherent in the people, although then latent, and who, in consequence, foresaw the splendid palaces and warm fabrics with which their descendants would one day adorn this island, he might well have been led to deplore the slow progress of improvement, and been grieved at the prevalence of so much intermediate misery. Yet, the explanation that man is a progressive being, is all that philosophy can offer; and if this satisfy us as to the past, it must be equally satisfactory in regard to the present and the future. The difficulty is eloquently adverted to by Dr Chalmers in his Bridgewater Treatise. "We might not know the reason," says he, "why, in the moral world, so many ages of darkness and depravity should have been permitted to pass by, any more than we know the reason why, in the natural world, the trees of a forest, instead of starting all at once into the full efflorescence and stateliness of their manhood, have to make their slow and laborious advancement to maturity, cradled in storms, and alternately drooping or expanding with the vicissitudes of the seasons. But though unable to scan all the cycles either of the moral or natural economy, yet we may recognise such influences at work, as, when multiplied and developed to the uttermost, are abundantly capable of regenerating the world. One of the likeliest of these influences is the power of education, to the perfecting of which so many minds are earnestly directed at this moment, and for the general acceptance of which in society we have a guarantee in the strongest affections and fondest wishes of the fathers and mothers of families." (Vol. i. p. 186.)

Although, therefore, we cannot explain why man was constituted a progressive being, and why such a being advances slowly, the principles of this essay show that there is at least an admirable adaptation of his faculties to his condition. If I am right in the fundamental proposition, that harmonious activity of the faculties is synonymous with enjoyment of existence—it follows that it would have been less wise and less benevolent towards man, constituted as he is, to have communicated to him intuitively perfect knowledge, thereby leaving his mental powers with diminished motives to activity, than to bestow on him faculties endowed with high susceptibility of action, and to surround him with scenes, objects, circumstances, and relations, calculated to maintain them in ceaseless excitement; although this latter arrangement necessarily subjects him to suffering while ignorant, and renders his first ascent in the scale of improvement difficult and slow. It is interesting to observe, that, according to this view, although the first pair of the human race had been created with powerful and well-balanced faculties, but of the same nature as at present; if they were not also intuitively inspired with knowledge of the whole creation, and its relations, their first movements as *individuals* would have been *retrograde;* that is, as *individuals*, they would, through pure want of information, have infringed many natural laws, and suffered evil; while, as *parts of the race*, they would have been decidedly *advancing:* for every pang they suffered would have led them to a new step in knowledge, and prompted them to advance towards a much higher condition than that which they at first occupied. According to the hypothesis now presented, not only is man really benefited by the arrangement which leaves him to discover the natural laws for himself, although, during the period of his ignorance, he suffers much evil from want of acquaintance with them; but the progress which he has already made towards knowledge and happiness must, from the very extent of his experience, *be actually greater* than can at present be conceived. Its extent will become more obvious, and his experience itself more valuable, after he has obtained a view of the real theory of his constitution. He will find that past miseries have at least exhausted countless errors, and he will know how to avoid thousands of paths that lead to pain: in short, he will then discover that errors in conduct, like errors in philosophy, give additional importance and practicability to truth, by the demonstration which they afford of the evils attending departures from its dictates. The grand sources of human suffering at present are bodily disease and mental anxiety, and, in the next chapter, these will be traced to infringement, through ignorance or otherwise, of physical, organic, moral, or intellectual laws, which, when expounded, appear in themselves calculated to promote the happiness of the race. It may be supposed that, according to this view, as knowledge accumulates, enjoyment will decrease; but, as formerly observed, ample provision is made against this event, by withholding intuition from each generation as it appears on the stage. Each successive age must acquire knowledge for itself; and, provided ideas are new and suited to the faculties, the pleasure of acquiring them from instructors is second only to that of discovering them ourselves. It is probable, moreover, that many ages will elapse before *all* the facts and relations of nature shall have been explored, and the possibility of discovery exhausted. If the universe be infinite, knowledge can never be complete.

The second question is, Has man really advanced in happiness, in proportion to his increase in knowledge? We are apt to entertain erroneous notions of the pleasures enjoyed in past ages. Fabulists have represented them as peaceful, innocent, and gay; but if we look narrowly into the conditions of the savage and barbarian of the present day, and recollect that these are the states of all individuals before the acquisition of scientific knowledge, we shall not much or long regret the pretended diminution of enjoyment by

civilisation.* Phrenology renders the superiority of the latter condition certain, by showing it to be a law of nature, that, until the intellect is extensively informed, and the moral sentiments assiduously exercised, the animal propensities bear the predominant sway; and that wherever these are supreme, misery is an inevitable concomitant. Indeed, the answer to the objection that happiness has not increased with knowledge, appears to me to be found in the fact, that until Phrenology was discovered, the nature of man was not scientifically known, and that, in consequence, very few of his institutions, civil or domestic, were correctly founded on the principle of the supremacy of the moral sentiments, or in accordance with the other laws of his constitution. Owing to the same cause, also, much of his knowledge has necessarily remained partial, and inapplicable to use; but after this science shall have been appreciated and applied, clouds of darkness, accumulated through long ages that are past, may be expected to roll away, as if touched by the rays of the meridian sun—and with them, many of the miseries that attend total ignorance or imperfect information to disappear.†

It ought also to be kept constantly in remembrance, that man is a *social being*, and that the precept "love thy neighbour as thyself" is imprinted in his constitution. That is to say, so much of the happiness of each individual depends on the habits, practices, and opinions of the society in which he lives, that he cannot reap the full benefits of his own advancement, until similar principles have been embraced and realised in practice by his fellow men. This renders it his interest, as it is his duty, to communicate his knowledge to them, and to carry them forward in the career of improvement. At this moment there are thousands of persons who feel their enjoyments, physical, moral, and intellectual, impaired and abridged by the mass of ignorance and prejudice which every where surrounds them. They are men living before their age, and whom the world neither understands nor appreciates. Let them not, however, repine or despair; but let them dedicate their best efforts to communicating the truths which have opened up to themselves the prospect of happiness, and they will not be disappointed. The law of our constitution which has established the supremacy of the moral sentiments, renders it impossible for individuals to attain the full enjoyment of their rational nature, until they have rendered their fellow men virtuous and happy; and in the truth and power of this principle, the ignorant and the wretched have a better guarantee for being raised in their condition by the efforts of their more fortunate brethren, than in the establishment of poor-laws or other legislative enactments. If all ranks of the people were taught the philosophy which I am now advocating, and if, in so far as it is true, it were enforced by their religious instructors as the will of the Creator communicated to man through His natural institutions, the progress of general improvement would be greatly accelerated.

If the notions now advocated shall ever prevail, it will be seen that the experience of past ages affords no sufficient reason for limiting our estimate of man's capabilities of civilisation. In the introductory chapter, I mentioned the slow and gradual preparation of the globe for man; and that he appears to be destined to advance only by stages to the highest condition of his moral and intellectual nature. At present he is obviously only in the beginning of his career. Although a knowledge of external nature, and of himself, is indispensable to his advancement to his true station as a rational being, yet four hundred years have not elapsed since the arts of printing and engraving were invented, without which, knowledge could not be disseminated through the mass of mankind; and, up to the present hour, the art of reading is by no means general over the world—so that, even now, the *means* of calling man's rational nature into activity, although discovered, are but very imperfectly applied. It is only five or six centuries since the mariner's compass was known in Europe, without which even philosophers could not ascertain the most common facts regarding the size, form, and productions of the earth. It is but three hundred and forty-three years since one-half of the habitable globe, America, became known to the other half; and considerable portions of it are still unknown even to the best informed inquirers. It is little more than two hundred years since the circulation of the blood was discovered; previously to which it was impossible even for physicians to form any correct idea of the uses of many of man's corporeal organs, and of their relations to external nature. Haller, who flourished in the early part and middle of the last century, may be regarded as the founder of human physiology as a science of observation. It is only between forty and fifty years since the true functions of the brain and nervous system were discovered; before which we possessed no adequate means of becoming acquainted with our mental constitution and its adaptation to external circumstances and beings. It is no more than sixty-one years since the study of Chemistry, or of the constituent elements of the globe, was put into a philosophical condition by Dr Priestley's discovery of oxygen; and hydrogen was discovered so lately as 1766, or sixty-nine years ago. Before that time, people in general were comparatively ignorant of the qualities and relations of the most important material agents with which they were surrounded. At present this knowledge is still in its infancy, as will appear from an enumeration of the dates of several other important discoveries. Electricity was discovered in 1728, galvanism in 1794, gas-light about 1798; and steam-boats, steam-looms, and the safety-lamp, in our own day.

It is only of late years that the study of Geology has been seriously begun; without which we could not know the past changes in the physical structure of the globe, a matter of much importance as an element in judging of our present position in the world's progress. This science also is still in its infancy. An inconceivable extent of territory remains to be explored, from the examination of which, the most interesting and instructive conclusions will probably present themselves. In astronomy, too, the discoveries of the two Herschels promise to throw additional light on the early history of the globe.

The mechanical sciences are at this moment in full play, putting forth vigorous shoots, and giving the strongest indications of youth, and none of decay.

The sciences of morals and of government are still in many respects in a crude condition.

In consequence, therefore, of his profound ignorance, man, in all ages, has been directed in his pursuits by the mere impulse of his strongest propensities, formerly to war and conquest, and now to accumulating wealth; without having framed his habits and institutions in conformity with correct and enlightened views of his own nature, and its real interests and wants. Up to the present day, the mass of the people in every nation have remained essentially ignorant, the tools of interested leaders, or the creatures of their own blind impulses, unfavourably situated for the developement of their rational nature; and they, constituting the great majority, necessarily influence the condition of the rest. But at last, the arts and sciences seem to be tending towards abridging human labour, so as to force leisure on the mass of the people; while the elements of useful knowledge are so rapidly increasing, the capacity of the operatives for instruction

* See on this subject a very elaborate and philosophical volume in the Library of Entertaining Knowledge, entitled *The New Zealanders*, p. 360.

† Readers who are strangers to Phrenology, and the evidence on which it rests, may regard the observations in the text as extravagant and enthusiastic; but I respectfully remind them, that, while they judge in comparative ignorance, it has been my endeavour to subject it to the severest scrutiny. Having found its proofs irrefragable, and being convinced of its importance, I solicit their indulgence in speaking of it as it appears to my own mind. As many persons continue ignorant of the progress which Phrenology has made, I have added, in the Appendix, No. III., a note on this subject.

is so generally recognised, and the means of communicating it are so powerful and abundant, that a new era may fairly be considered as having commenced.

From the want of a practical philosophy of human nature, multitudes of amiable and talented individuals are at present anxious only for preservation of the attainments which society possesses, and dread retrogression in the future. If the views now expounded be correct, this race of moralists and politicians will in time become extinct, because progression being the law of our nature, the proper education of the people will render the desire for improvement universal.

CHAPTER V.

TO WHAT EXTENT ARE THE MISERIES OF MANKIND REFERABLE TO INFRINGEMENT OF THE LAWS OF NATURE?

I. *Calamities arising from infringement of the physical laws*—These laws of great utility to animals who act in accordance with them, and productive of injury only when disregarded—Example of law of gravitation—Man and the lower animals constitutionally placed in certain relations to that law—Calamities suffered from it by man, to what referable?—The objection considered, That the great body of mankind are not sufficiently moral and intellectual to act in conformity with the natural laws—The more ignorant and careless men are, the more they suffer.——II. *Evils that befall mankind from infringement of the organic laws*—Necessity of so enlightening the intellect as to enable it to curb and direct the blind feelings which naturally and spontaneously arise in the mind—Organised being defined—To enjoy a constitution as perfect as possible, it must spring from a sound and complete germ; be supplied with food, light, and air; and duly exercise its functions—The human frame so constituted as to admit of the *possibility* of health and vigour during a long life—Remarkable health of the New Zealanders—The sufferings of women in childbed apparently not inevitable—The organic laws hitherto neglected and little known—Miseries resulting from this cause to INDIVIDUALS—Description of the brain—Necessity for its regular exercise—To provide for this, we must (1) educate and train the mental faculties in youth, and (2) place individuals in circumstances habitually demanding the discharge of useful and important duties—Answer to the question, What is the use of education?—The whole body improved by exercise of the brain—Misery of idleness—Instances of evils produced by neglect of the natural laws: The great plague in London; fever and ague in marshy districts; explosions in coal-mines—Answer to the objection, That men are unable to remember the natural laws, and to apply the knowledge of them in practice—Advantage of teaching scientific *principles*—Farther examples of disease and premature death consequent on neglect of the organic laws—Eminent success of Captain Murray in preserving the health of his crew—Erroneous views of divine dispensations, in the works of religious writers—SOCIAL miseries from neglect of the organic laws—(1.) *Domestic* miseries—Marriage of persons with discordant minds a fertile source of unhappiness—Phrenology affords the means of avoiding this error—Different forms of head, and the concomitant dispositions, exemplified by the cases of Hare, Williams, Sheridan, Melancthon, Pope Alexander VI., and Vitellius—Crabbe and Dr Johnson quoted—Hereditary transmission of bodily and mental qualities from parents to children—Transmission of diseases well known—Transmission of character remarked by many writers—Horace, Drs John and James Gregory, Voltaire, Dr King, Dr Mason Good, Haller, &c., quoted on this subject—Hereditary descent of forms of brain obvious in nations—The offspring of an American or Asiatic and a European superior to the offspring of two Americans or Asiatics—The extent to which children resemble their parents, considered—Reasons for concluding that the mental character of each child is determined by the qualities of the stock, combined with the faculties predominant in the parents at the commencement of its existence—Transmission of factitious or temporary conditions of the body—Transmission of acquired habits—Appearance of peculiarities in children, in consequence of impressions made on the mind of the mother—Descent of temporary mental and bodily qualities—These subjects still in many respects obscure—General neglect of the organic laws in the formation of marriages—Dr Caldwell quoted—Marriage prohibited in Wurtemberg before certain ages—Advantages arising from the law of hereditary descent, and bad effects which would follow its abolition—Why do children of the same marriage differ from each other?—Cases illustrative of the evils resulting from neglect of the law of hereditary transmission—Marriage between blood-relations forbidden by the natural law—(2.) Hurtful consequences of neglect of the organic laws in the *ordinary relations of society*—Misconduct of servants, clerks, partners, and agents—Utility of Phrenology in enabling us to avoid this source of misery—DEATH—A natural and useful institution—Views of theologians respecting it—Death considered as it affects the lower animals and mankind—Nature does not seem to intend the death of human beings, except in old age—Untimely death the result of infringement of the organic laws—Means provided by nature to relieve men from the fear of death—Death not revolting to the moral sentiments—Frequency of premature death decreasing.——III. *Calamities arising from infringement of the moral law*—Cause of the diversity of moral and religious codes and opinions in different nations and among philosophers—Advantages secured by cultivating and acting under the dictates of the moral sentiments and intellect; and evils induced by the opposite conduct—(1) Sufferings of individuals from neglect of the moral and intellectual laws—(2) Calamities arising to individuals and communities from infringement of the social law—Malthus's principle of population—The inhabitants of Britain too much engrossed by manufacturing and mercantile pursuits—Misery produced by overstocking the markets—Times of "commercial prosperity" are seasons of the greatest infringements of the laws of nature—Injustice and inexpediency of the combination-laws—Necessity of abridging the periods of labour of the operative population, and cultivating their moral and rational faculties—This rendered possible by the use of machinery in manufactures—Ought government to interfere with industry?—Miseries endured by the middle and upper ranks in consequence of departure from the moral law in the present customs of society—(3) Effect of the moral law on national prosperity—The highest prosperity of one nation perfectly compatible with that of every other—Necessity that nations, in order to secure it, should act towards each other on the principle of the supremacy of the moral sentiments—Evil produced by disregard of that principle—Illustrations in the slave-trade, the American war, and the project of Themistocles to burn the Spartan ships—The national debt of Britain the result of unprincipled wars—Other evils from the same source—Bad effects anticipated from the existence of negro slavery in the United States—The Spaniards punished under the natural laws for their cruelties in America—The civilisation of savages more easy by pacific than by forcible measures—Moral science far outstripped by physical—Necessity of cultivating the former.

IN the present chapter, I propose to inquire into some of the evils that have afflicted the human race; and whether they have proceeded from neglect of laws, benevolent and wise in themselves, and calculated, when observed, to promote the happiness of man; or from a constitution of nature so defective that he cannot supply its imperfections, or so vicious that he can neither rectify nor improve its qualities. The following extract from the journal of John Locke, contains a forcible statement of the principle which I intend to illustrate:—"Though justice be also a perfection which we must necessarily ascribe to the Supreme Being, yet we cannot suppose the exercise of it should extend farther than his goodness has need of it for the preservation of his creatures in the order and beauty of the state that he has placed each of them in; for since our actions cannot reach unto him, or bring him any profit or damage, the punishments he inflicts on any of his creatures, *i. e.* the misery or destruction he brings upon them, can be nothing else but to preserve the greater or more considerable part; and so being only for preservation, his justice is nothing but a branch of his goodness, which is fain by severity to restrain the irregular and destructive parts from doing harm."—*Lord King's Life of Locke*, p. 122.

SECT. I.—CALAMITIES ARISING FROM INFRINGEMENT OF THE PHYSICAL LAWS.

The proper way of viewing the Creator's institutions, is to look, first to their uses, and to the advantages that flow from using them aright, and, secondly, to their abuses, and the evils that proceed from this source.

In Chapter II., some of the benefits conferred on man by the law of gravitation are enumerated; and I may here advert to some of the evils originating from that law, when human conduct is in opposition to it. For example, men are liable to fall from horses, carriages, stairs, precipices, roofs, chimneys, ladders, and masts, and also to slip in the street—by which accidents life is often suddenly cut short, or rendered

miserable from lameness and pain; and the question arises, Is human nature provided with any means of protection against these evils, at all equal to their frequency and extent?

The lower animals are equally subject to this law; and the Creator has bestowed on them external senses, nerves, muscles, bones, an instinctive sense of equilibrium, the sense of danger, or cautiousness, and other faculties, to place them in accordance with it. These appear to afford sufficient protection to animals placed in all ordinary circumstances; for we very rarely discover any of them, in their natural condition, killed or mutilated by accidents referable to gravitation. Where their mode of life exposes them to extraordinary danger from this law, they are provided with additional securities. The monkey, which climbs trees, enjoys great muscular energy in its legs, claws, and tail, far surpassing, in proportion to its gravitating tendency, or its bulk and weight, what is bestowed on the legs and arms of man; so that by means of them it springs from branch to branch, in almost complete security against the law in question. The goat, which browses on the brinks of precipices, has received a hoof and legs that give precision and stability to its steps. Birds, which are destined to sleep on branches of trees, are provided with a muscle passing over the joints of each leg and stretching down to the foot, and which, being pressed by their weight, produces a proportionate contraction of their claws, so as to make them cling the faster, the greater their liability to fall. The fly, which walks and sleeps on perpendicular walls, and the ceilings of rooms, has a hollow in its foot, from which it expels the air, and the pressure of the atmosphere on the outside of the foot holds it fast to the object on which the inside is placed. The walrus, or sea-horse, which is destined to climb up the sides of ice-hills, is provided with a similar apparatus. The camel, whose native region is the sandy desert of the torrid zone, has broad spreading hooves to support it on the loose soil. Fishes are furnished with air-bladders, by dilating and contracting which they can accommodate themselves with perfect precision to the law of gravitation.

In these instances, the lower animals, under the sole guidance of their instincts, appear to be placed admirably in harmony with gravitation, and guaranteed against its infringement. Is man, then, less an object of love with the Creator? Is he alone left exposed to the evils that spring inevitably from its neglect? His means of protection are different, but when understood and applied, they will probably be found not less complete. Man, as well as the lower animals, has received bones, muscles, nerves, an instinct of equilibrium,* and the faculty of Cautiousness; but not in equal perfection, in proportion to his figure, size, and weight, with those bestowed on them:—The difference, however, is far more than compensated by other faculties, particularly those of Constructiveness and Reflection, in which he greatly surpasses them. Keeping in view that the external world, in regard to man, is arranged on the principle of the supremacy of the moral sentiments and intellect, we shall probably find that the calamities suffered by him from the law of gravitation, are referable to predominance of the animal propensities, or to neglect of proper exercise of his intellectual powers. For example, when coaches break down, ships sink, or men fall from ladders, how generally may the cause be traced to decay in the vehicle, the vessel, or the ladder, which a predominating Acquisitiveness alone prevented from being repaired; or when men fall from houses and scaffolds, or slip on the street, how frequently should we find their muscular, nervous, and mental energies impaired by preceding debaucheries—in other words, by predominance of the animal faculties, which for the time diminished their natural means of accommodating themselves to the law from which they suffer. The slater, in using a ladder, assists himself by the reflective powers; but, in walking along the ridge of a house, or standing on a chimney, he takes no aid from these faculties; he trusts to the mere instinctive power of equilibrium, in which he is inferior to the lower animals—and, in so doing, clearly violates the law of his nature that requires him to use reflection where instinct is deficient. Causality and Constructiveness could invent and provide means, by which, if he slipped from a roof or chimney, his fall might be arrested. A small chain, for instance, attached by one end to a girdle round his body, and having the other end fastened by a hook and eye to the roof, might leave him at liberty to move, and might break his fall in case he slipped. How frequently, too, do these accidents happen after disturbance of the mental faculties and corporeal functions by intoxication!

* Vide Essay on Weight, Phren. Journ. vol. ii, p. 412.

The objection will probably occur, that in the gross condition in which the mental powers exist, the great body of mankind are incapable of exerting habitually that degree of moral and intellectual energy, which is indispensable to observance of the natural laws; and that, therefore, they are, in point of fact, less fortunate than the lower animals. I admit that, at present, this representation is to a considerable extent just; but nowhere do I perceive the human mind instructed, and its powers exercised, in a degree at all approaching to their limits. Let any person recollect how much greater capacity for enjoyment and security from danger he has experienced, at a particular time, when his whole mind was filled with, and excited by, some mighty interest, not only allied to, but founded in, morality and intellect, than in that languid condition which accompanies the absence of elevated and ennobling emotions; and he may form some idea of what man will become capable of, when his powers shall have been cultivated to the extent of their capacity. At the present moment, no class of society is systematically instructed in the constitution of the mind and body, in the relations of these to external objects, in the nature of these objects, in the natural supremacy of the moral sentiments, in the principle that activity of the faculties is the true source of pleasure, and that the higher the powers the more intense the delight; and if such views be to the mind what light is to the eyes, air to the lungs, and food to the stomach, there is no wonder that a mass of inert *mentality*, if I may use such a word, should every where exist around us, and that numberless evils should spring from its continuance in this condition. If active moral and intellectual faculties are the natural fountains of enjoyment, and the external world is created with reference to this state, it is as obvious that misery must result from animal supremacy and intellectual torpidity, as that flame, which is constituted to burn only when supplied with oxygen, must inevitably become extinct when exposed to carbonic acid gas. Finally, if the arrangement by which man is left to discover and obey the laws of his own nature, and of the physical world, be more conducive to activity than intuitive knowledge, the calamities now contemplated appear to be instituted to force him to his duty; and his duty, when understood, will constitute his delight.

While, therefore, we lament the fate of individual victims to the law of gravitation, we cannot condemn that law itself. If it were suspended, to save men from the effects of negligence, not only would the proud creations of human skill totter to their base, and the human body rise from the earth and hang midway in the air, but our highest enjoyments would be terminated, and our faculties become positively useless, by being deprived of their field of exertion. Causality, for instance, teaches that the same cause will always, *cæteris paribus*, produce similar effects; and if the physical laws were suspended or varied, so as to accommodate themselves to man's negligence or folly, it is obvious that this faculty would be without an object, and that no definite course of action could be entered upon with confidence in the result. If, then, this view of the constitution of nature were kept steadily in mind, the occurrence of one accident of

this kind would stimulate reflection to discover means of avoiding others.

Similar illustrations and commentaries might be given, in regard to the other physical laws to which man is subject; but the object of the present essay being merely to evolve principles, I confine myself to gravitation, as the most obvious and best understood.

I do not mean to say, that, by the mere exercise of intellect, man may absolutely guarantee himself against all accidents, but only that the more ignorant and careless he is, the more will he suffer—and the more intelligent and vigilant, the less; and that I can perceive no limits to this rule. The law of most civilised countries recognises this principle, and subjects owners of ships, coaches, and other vehicles, in reparation of damage arising from gross infringements of the physical laws. It is unquestionable that the enforcement of this liability has given increased security to travellers in no trifling degree.

SECT. II.—ON THE EVILS THAT BEFALL MANKIND FROM INFRINGEMENT OF THE ORGANIC LAWS.

It is a very common error to imagine that the *feelings* of the mind are communicated to it through the medium of the *intellect;* and, in particular, that if no indelicate objects reach the eyes, or expressions penetrate the ears, perfect purity will necessarily reign within the soul: and, carrying this mistake into practice, they are prone to object to all discussion of the subjects treated of under the "Organic Laws," in works designed for general use. But their principle of reasoning is fallacious, and the result has been highly detrimental to society. The *feelings* have existence and activity distinct from the *intellect;* they spur it on to obtain their own gratification; and it may become either their guide or their slave, according as it is, or is not, enlightened concerning their constitution and objects, and the laws of nature to which they are subjected. The most profound philosophers have inculcated this doctrine, and by phrenological observation it is demonstratively established. The organs of the feelings are distinct from those of the intellectual faculties; they are larger; and as each faculty, *cæteris paribus*, acts with a vigour proportionate to the size of its organs, the feelings are obviously the more active or impelling powers. The cerebellum, or organ of Amativeness, is the largest of the whole mental organs; and, being endowed with natural activity, it fills the mind spontaneously with emotions and suggestions, the outward manifestation of which may be directed, controlled, and resisted, by intellect and moral sentiment, but which cannot be prevented from arising, or eradicated after they exist. The whole question, therefore, resolves itself into this: Whether is it more beneficial to enlighten the understanding, so as to dispose and enable it to control and direct that feeling—or (under the influence of an error in philosophy, and false delicacy founded on it) to permit it to riot in all the fierceness of a blind animal instinct, withdrawn from the eye of reason, but not thereby deprived of its vehemence and importunity? The former course appears to me to be the only one consistent with reason and morality; and I shall adopt it in reliance on the good sense of my readers, that they will at once discriminate between practical instruction concerning this feeling addressed to the intellect, and lascivious representations addressed to the mere propensity itself—with the latter of which the enemies of all improvement may attempt to confound my observations. Every function of the mind and body is instituted by the Creator: each has a legitimate sphere of activity: but all may be abused; and it is impossible regularly to avoid abuse of them, except by being instructed in their nature, objects, and relations. This instruction ought to be addressed exclusively to the intellect; and when it is so, it is science of the most beneficial description. The propriety, nay necessity, of acting on this principle, becomes more and more apparent, when it is considered that such discussions suggest only intellectual ideas to individuals in whom the feeling in question is naturally weak, and that such minds perceive no indelicacy in knowledge which is calculated to be useful; while, on the other hand, persons in whom the feeling is naturally strong, are precisely those who stand in need of direction, and to whom, of all others, instruction is the most necessary.

An organised being is one which derives its existence from a previously existing organised being—which subsists on food, grows, attains maturity, decays, and dies. Whatever the ultimate object of the Creator, in constituting organised beings, may be, it will scarcely be denied that part of His design is, that they should enjoy their existence here; and, if so, the object of every part of their structure ought to be found conducing to this end. To render an organised being perfect in its kind, the first law that must be observed is, that the germ from which it springs shall be complete in all its parts, and sound in its whole constitution: the second is, that the moment it is ushered into life, and as long as it continues to live, it shall be supplied with food, light, air, and every other aliment necessary for its support; and the third law is, that it shall duly exercise its functions. When all these laws are obeyed, the being should enjoy pleasure from its organised frame, if its Creator is benevolent; and its constitution should be so adapted to its circumstances, as to admit of obedience to them, if its Creator is wise and powerful. Is there, then, no such phenomenon on earth, as a human being existing in full possession of organic vigour, from birth till advanced age, when the organised system is fairly worn out? Numberless examples of this kind have occurred, and they show to demonstration, that the corporeal frame of man is so constituted as to admit the *possibility* of his enjoying health and vigour during the whole period of a long life. It is mentioned in the Life of Captain Cook, that "one circumstance peculiarly worthy of notice is the perfect and uninterrupted health of the inhabitants of New Zealand. In all the visits made to their towns, where old and young, men and women, crowded about our voyagers, they never observed a single person who appeared to have any bodily complaint; nor among the numbers that were seen naked, was once perceived the slightest eruption upon the skin, or the least mark which indicated that such an eruption had formerly existed. Another proof of the health of these people is the facility with which the wounds they at any time receive are healed. In the man who had been shot with the musket ball through the fleshy part of his arm, the wound seemed to be so well digested, and in so fair a way of being perfectly healed, that if Mr Cook had not known that no application had been made to it, he declared that he should certainly have inquired, with a very interested curiosity, after the vulnerary herbs and surgical art of the country. An additional evidence of human nature's being untainted with disease in New Zealand, is the great number of old men with whom it abounds. Many of them, by the loss of their hair and teeth, appeared to be very ancient, and yet none of them were decrepid. Although they were not equal to the young in muscular strength, they did not come in the least behind them with regard to cheerfulness and vivacity. Water, as far as our navigators could discover, is the universal and only liquor of the New Zealanders. It is greatly to be wished that their happiness in this respect may never be destroyed by such a connexion with the European nations, as shall introduce that fondness for spirituous liquors which hath been so fatal to the Indians of North America."—*Kippis's Life of Captain Cook.* Dublin, 1788. p. 100.

In almost every country, individuals are to be found, who have escaped from sickness during the whole course of a protracted life.

Now, as a natural law never admits of an exception, this excellent health could not occur in any individuals unless it were fairly within the capabilities of the race.

The sufferings of women in childbed have been cited as evidence that the Creator has not intended the human being, under any circumstances, to execute all its functions entirely free from pain. But, besides the obvious answer, that the objection applies only to one sex, and is therefore not to be too readily presumed to have its origin in nature, there is good reason to deny the assertion, and to ascribe the suffering in question to departures from the natural laws, in either the structure or the habits of the individuals who experience it.*

The advantage of studying the finest models of the human figure, as exhibited in painting and sculpture, is to raise our ideas of the excellence of form and proportion to which our nature is capable of attaining; for, other conditions being equal, the most perfect forms and proportions are always the best adapted for health and activity.

Let us hold, then, that the organised system of man, in itself, admits of the *possibility* of health, vigour, and organic enjoyment, during the full period of life; and proceed to inquire into the causes why these advantages are not universal.

One organic law, I have stated, is, that the germ of the infant being must be complete in all its parts, and perfectly sound in its condition, as an indispensable requisite to vigorous dovelopement and full enjoyment of existence. If an agriculturist sow corn that is weak, wasted, and damaged, the plants that spring from it will be feeble, and liable to speedy decay. The same law holds in the animal kingdom; and I would ask, has it hitherto been observed by man? Notoriously it has not. Indeed, its existence has been either altogether unknown, or in a very high degree disregarded by human beings. The feeble, the sickly, the exhausted with age, and the incompletely developed through extreme youth, marry, and, without the least compunction regarding the organisation which they shall transmit to their offspring, send into the world miserable beings, the very rudiments of whose existence are tainted with disease. If we trace such conduct to its source, we shall find it to originate either in animal propensity, or in ignorance, or more frequently in both. The inspiring motives are generally mere sensual appetite, avarice, or ambition, operating in the absence of all just conceptions of the impending evils. The punishment of this offence is debility and pain transmitted to the children, and reflected back in anxiety and sorrow on the parents. Still the great point to be kept in view is, that these miseries are not legitimate consequences of *observance* of the organic laws, but the direct chastisement of their *infringement*. These laws are unbending, and admit of no exception; they must be fulfilled, or the penalties of disobedience will follow. On this subject profound ignorance reigns in society. From such observations as I have been able to make, I am convinced that the union of certain temperaments and combinations of mental organs in the parents, is highly conducive to health, talent, and morality in the offspring, and *vice versa;* and that these conditions may be discovered and taught with far greater certainty, facility, and advantage, than is generally imagined. It will be time enough to conclude that men are naturally incapable of obedience to the organic laws, when, after their intellectual faculties and moral sentiments have been trained to observance of the Creator's institutions, as at once their duty, their interest, and a grand source of their enjoyment, they shall be found in continued rebellion.

A second organic law regards nutriment, which must be supplied of a suitable kind, and in due quantity. This law requires also free air, light, cleanliness, and attention to every physical arrangement by which the functions of the body may be strengthened or impaired. Have mankind, then, acted in accordance with, or neglected, *this* institution? I need scarcely answer the question. To be able to conform to institutions, we must first know them. Before we can know the organic constitution of our body, we must study it, and the study of the human constitution is anatomy and physiology. Before we can become acquainted with its relations to external objects, we must learn the existence and qualities of these objects (unfolded by chemistry, natural history, and natural philosophy), and compare them with the constitution of the human body. When we have fulfilled these conditions, we shall be better able to discover the laws which the Creator has instituted in regard to our organic system.*

It will be said, however, that such studies are impracticable to the great bulk of mankind, and, besides, do not appear much to benefit those who pursue them. They are impracticable only while mankind prefer founding their public and private institutions on the basis of the propensities, instead of on that of the moral sentiments. I have mentioned, that exercise of the nervous and muscular systems is required of *all* the race by the Creator's fiat; that if all who are capable would obey this law, a moderate amount of exertion, agreeable and salubrious in itself, would suffice to supply our wants, and to surround us with every beneficial luxury; and that a large portion of unemployed time would remain. The Creator has bestowed on us Knowing Faculties, fitted to explore the facts of these sciences, Reflecting Faculties to trace their relations, and Moral Sentiments calculated to feel interest in such investigations, and to lead us to reverence and obey the laws which they unfold; and, finally, He has made this occupation, when entered upon with the view of tracing His power and wisdom in the subjects of our studies, and of discovering and obeying His institutions, the most delightful and invigorating of all vocations. Instead, then, of such a course of education being impracticable, every arrangement of the Creator appears to be prepared in direct anticipation of its actual accomplishment.

The second objection, that those who study these sciences are not more healthy and happy, as organised beings, than those who neglect them, admits of an easy answer. They may have inherited feeble frames from their parents. Besides, only parts of these sciences have been taught to a few individuals, whose main design in studying them has been to apply them as means of acquiring wealth and fame; but they have nowhere been taught as connected parts of a great system of natural arrangements, fraught with the highest influences on human enjoyment; and in almost no instance have the intellect and moral sentiments been systematically directed to the natural laws, as the grand fountains of happiness and misery to the race, and trained to observe and obey them as the institutions of the Creator. In cases where physiology, natural history, and natural philosophy, have been properly studied, the objection alluded to is at variance with experience and fact.

A third organic law is, that all our functions shall be duly exercised; and is this law observed by mankind? Many persons are able, from experience, to attest the severity of the punishment that follows neglect to exercise the *muscular system*, in the lassitude, indigestion, irritability, debility, and general uneasiness that attend a sedentary and inactive life: But the penalties that attach to neglect of exercising the *brain* are much less known, and therefore I shall notice them more at length. The following is the description of the brain given by Dr A. Combe, in his work on Physiology applied to Health and Education, already alluded to.

"The brain is that large organised mass, which, along with its enveloping membranes, completely fills the cavity of the skull. It is the seat of thought, of feeling, and of consciousness, and the centre towards which all impressions made on the nerves distributed through the body are conveyed, and from which the

* See Appendix, No. IV.

* In "Physiology applied to Health and Education," by Dr A. Combe, to which I refer, the organic laws are expounded in detail, and many striking examples are given of the infringement of these laws, and of its injurious consequences.

commands of the will are transmitted to put the various parts in motion.

"The structure of the brain is so complicated, that less is known of its true nature than of that of almost any other organ. It would therefore be entirely out of place to attempt to describe it here, farther than by stating generally its principal divisions. On sawing off the top of the skull, and removing the firm tough membrane called *dura mater* (hard mother), which adheres closely to its concave surface, the *cerebrum* or *brain proper* presents itself, marked on the surface with a great variety of undulating windings or *convolutions*, and extending from the fore to the back part of the head, somewhat in the form of an ellipse. The annexed cut Fig 1. represents the convolutions as seen

FIG. 1.—UPPER SURFACE OF THE BRAIN.

on the upper surface of the brain. In the middle line, from A to B, a deep cleft or fissure is perceived, separating the brain, in its whole length, into two halves, or *hemispheres*, as they are called. Into this cleft dips a tight stiff membrane, resembling a scythe in shape, and hence called the *falx* (scythe), or sometimes, from its being a mere fold of the *dura mater*, the *falciform* (*scythe-like*) *process* of the *dura mater*. From its dipping down between the two halves of the brain, the chief purpose of this membrane seems to be to relieve the one side from the pressure of the other, when we are asleep, for example, or have the head reclining to either side. The membrane does not descend to the bottom of the brain, except in a small part, at the front and back, G G in Fig. 2. It descends about two-thirds of the depth of the whole brain. At the point where it terminates, a mass of fibres, named the *corpus callosum*, passes between and connects the two hemispheres. The convolutions represented in Fig. 1. belong chiefly to the coronal region, and manifest the moral sentiments."

The cut Fig. 2. represents the convolutions lying at the base of the brain.

"Each half or *hemisphere* of the brain is, in its turn, divided—but in a less marked way, as the divisions are observable only on its inferior surface—into three portions, called, from their situations, the *anterior*, *middle*, and *posterior lobes*, each occupying nearly a third of the whole length of the brain. The anterior lobe, being the portion lying before the dotted line E E, occupies the forehead; the middle is all the portion lying between the two transverse lines E E and F F, above and a little in front of the ears; and the posterior lobe is that portion lying behind the transverse line F F, and corresponding to the back part of the head.

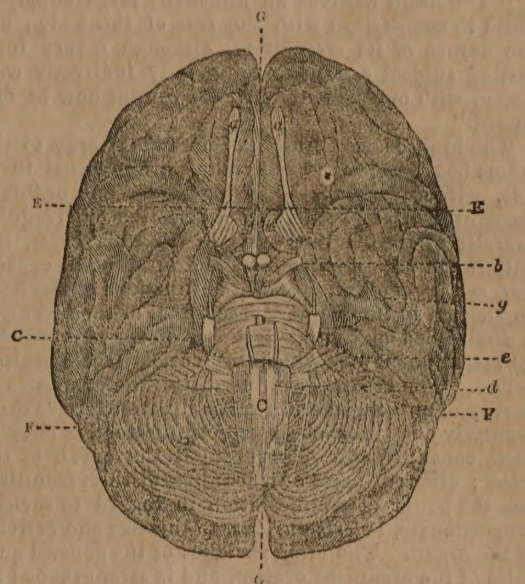
"Beneath the posterior lobe, a strong fold of the dura mater, called the *tentorium*, is extended horizontally to support and separate it from the *cerebellum*, A A, or little brain, lying below it. The cerebellum

forms the last great division of the contents of the skull. Its surface is marked by convolutions, differing, however, in size and appearance from those observed in the brain.

"Adhering to the surface of the convolutions, and consequently dipping down into, and lining the sulci or furrows between them, another membrane, of a finer texture, and greater vascularity, called *pia mater*, is found. The bloodvessels going to the brain branch out so extensively on the pia mater, that, when a little inflamed, it seems to constitute a perfect vascular network. This minute subdivision is of use in preventing the blood from being impelled with too great force against the delicate tissue of the brain.

"A third covering, called the *arachnoid* membrane,

FIG. 2.—UNDER SURFACE OF THE BRAIN.



from its fineness resembling that of a spider's web, is interposed between the other two, and is frequently the seat of disease.

"On examining the convolutions in different brains, they are found to vary a good deal in size, depth, and general appearance. In the various regions of the same brain they are also different, but preserve the same general aspect. Thus they are always small and numerous in the anterior lobe, larger and deeper in the middle, and still larger in the posterior lobe. The thick cord or root C, springing from the base of the brain, is named the *medulla oblongata*, or oblong portion of the spinal marrow, which is continued downwards, and fills the cavity of the spine or back-bone. At one time the brain has been regarded as proceeding from, and at another as giving rise to, the spinal marrow; but, in reality, the two are merely connected, and neither grows from the other. The false analogy of a stem growing from a root has led to this abuse of language.

"The small round filaments or cords seen to proceed from the sides of the medulla oblongata, and from near the base of the brain, are various *nerves* of sensation and motion, some of them going to the organs of sense, and others to the skin and muscles of the face, head, and other more distant parts. The long flat-looking nerve *a a*, lying on the surface of the anterior lobe, is the *olfactory*, or nerve of smell, going to the nose. The round thick nerve 4 4, near the roots of the former, is the *optic*, or nerve of vision, going to the eye. That marked *b* is the motor nerve which supplies the muscles of the eyeball. A little farther back, the fifth pair *c*, is seen to issue apparently from the arch D, called *pons Varolii*, or *bridge of Varolius*. It is a large compound nerve, and divides into three branches, which are ramified on almost all the parts connected with the head and face, and the upper and under jaw. It is a nerve of both sensation and motion, and one branch of it ramified

on the tongue is the nerve of taste. Other branches supply and give sensibility to the teeth, glands, and skin. The seventh or *auditory* nerve *e*, is distributed on the internal ear, and serves for hearing. The eighth, or *pneumogastric* nerve *d*, sends filaments to the windpipe, lungs, heart, and stomach, and is one of great importance in the production of the voice and respiration. It also influences the action of the heart, and the process of digestion.

"Such are the principal nerves more immediately connected with the brain, but which it is impossible to describe more minutely here. Those which supply the trunk of the body and the extremities, issue chiefly from the spinal marrow; but they also must, for the present, be passed over in silence, that we may return to the consideration of the brain.

"The brain receives an unusually large supply of blood in comparison with the rest of the body: but the nature of its circulation, although a very interesting subject of study, being only indirectly connected with our present purpose, cannot now be discussed."

The brain is the fountain of nervous energy to the whole body, and many individuals are habitual invalids, without actually labouring under any ordinary recognised disease, solely from defective or irregular exercise of the nervous system. In such cases, not only the mind, in its feelings and intellectual capacities, suffers debility, but all the functions of the body participate in its languor, because all of them receive a diminished and vitiated supply of the nervous stimulus, a due share of which is essential to their healthy action. The best mode of increasing the strength and energy of any organ and function, is to exercise them regularly and judiciously, according to the laws of their constitution.* The brain is the organ of the mind; different parts of it manifest distinct faculties; and the power of manifestation in regard to each is proportionate, *cæteris paribus*, to the size and activity of the organ. The brain partakes of the general qualities of the organised system, and is strengthened by the same means as the other organs. When the muscles are called into vivacious activity, an increased influx of blood and nervous stimulus takes place in them, and their vessels and fibres become at once larger, firmer, and more susceptible of action. Thought and feeling are to the brain what bodily exercise is to the muscles; they put it into activity, and cause increased action in its bloodvessels, and an augmented elaboration of nervous energy. In a case reported by Dr Pierquin, observed by him in one of the hospitals of Montpelier in 1821, he saw, in a female patient part of whose skull had been removed, the brain motionless and lying within the cranium when she was in a dreamless sleep; in motion and protruding without the skull when she was agitated by dreams; more protruded in dreams reported by herself to be vivid; and still more so when perfectly awake, and especially if engaged in active thought or sprightly conversation. Similar cases are reported by Sir Astley Cooper and Professor Blumenbach.†

Those parts of the brain which manifest the feelings, constitute by far the largest portion of it, and they are best exercised by discharging the active duties of life and of religion: the parts which manifest the intellect are smaller, and are exercised by the application of the understanding in practical business, and in the arts, sciences, or literature.

The first step, therefore, towards establishing the regular exercise of the brain, is to educate and train the mental faculties in youth; and the second is to place the individual habitually in circumstances demanding the discharge of useful and important duties.

I have often heard the question asked, What is the use of education? The answer might be illustrated by explaining to the inquirer the nature and objects of the various organs of the body, such as the limbs, lungs, and eyes, and then asking him, if he could perceive any advantage to a being so constituted, in obtaining access to earth, air, and light? He would at once declare, that they were obviously of the very highest utility to him, as affording the only conceivable means by which these organs could obtain scope for action, which action we suppose him to know to be pleasure. To those, then, who know the constitution of the brain as the organ of the moral and intellectual powers of man, I need only say, that the objects presented by education to the mind, bear to it the same relation that the physical elements of nature do to the nerves and muscles; they afford the faculties scope for action, and yield them delight. The meaning commonly attached to the word *education* in such cases, is Greek and Latin; but I employ it to signify knowledge of nature and science in all its departments. Again, the signification generally attached to the word *use* in such questions, is, how much *money*, *influence*, or *consideration*, will education bring?—these being the only objects of strong desire with which uncultivated minds are acquainted; and it is not perceived in what way education can greatly gratify such propensities. But the moment the mind is opened to the perception of its own constitution and to the natural laws, the great advantage of moral and intellectual cultivation, as a means of exercising and invigorating the brain and mental faculties, and also of directing the conduct in obedience to these laws, becomes apparent.

But there is an additional benefit arising from healthy activity of brain, which is little known. Different modifications of the nervous energy elaborated by the brain, appear to take place, according to the mode in which the faculties and organs are affected. For example, when misfortune and disgrace impend over us, the organs of Cautiousness, Self-Esteem, and Love of Approbation, are painfully excited, and appear to transmit an impaired, or positively noxious, nervous influence to the heart, stomach, intestines, and thence to the rest of the body; digestion is deranged, the pulse becomes feeble and irregular, and the whole corporeal system wastes. When, on the other hand, the cerebral organs are agreeably affected, a benign and vivifying nervous influence pervades the frame, and all the functions of the body are performed with increased pleasure and success. Now, it is a law, that the quantum of nervous energy increases with the number of cerebral organs roused to activity, and with the degree of that activity itself. In the retreat of the French from Moscow, for example, when no enemy was near, the soldiers became depressed in courage and enfeebled in body, and nearly sank to the earth through exhaustion and cold; but no sooner did the fire of the Russian guns sound in their ears, or the gleam of their bayonets flash in their eyes, than new life seemed to pervade them. They wielded powerfully the arms, which, a few moments before, they could scarcely carry or drag on the ground. Scarcely, however, was the enemy repulsed, when their feebleness returned. The theory of this is, that the approach of the combat called into activity a variety of additional faculties; these sent new energy through every nerve; and, while their vivacity was maintained by the external stimulus, they rendered the soldiers strong beyond their merely physical condition. Many persons have probably experienced the operation of the same principle. If, when sitting feeble and listless by the fire, we have heard of an accident having occurred to some beloved friend who required our instantaneous aid, or if an unexpected visitor has arrived, in whom our affections were bound up—in an instant our lassitude was gone, and we moved with an alertness and animation that seemed surprising to ourselves. The cause was the same; these events roused Adhesiveness, Benevolence, Love of Approbation, Intellect, and a variety of faculties which were previously dormant, and their influence invigorated the limbs. Dr

* See Dr A. Combe's Physiology, &c., 3d edit., pp. 147, 192, 277.

† See American Annals of Phrenology, No. I. p. 37. Sir A. Cooper's Lectures on Surgery, by Tyrrel, vol. i. p. 279. Elliotson's Blumenbach, 4th edition, p. 283. Phren. Journ. vol. ix. p. 253.

Sparrman, in his Voyage to the Cape, mentions a striking illustration of the principle. "There was now again," says he, "a great scarcity of meat in the waggon; for which reason my Hottentots began to grumble, and reminded me that we ought not to waste so much of our time in looking after insects and plants, but give a better look-out after the game. At the same time, they pointed to a neighbouring dale overrun with wood, at the upper edge of which, at the distance of about a mile and a quarter from the spot where we then were, they had seen several buffaloes. Accordingly, we went thither; but though our fatigue was lessened by our Hottentots carrying our guns for us up a hill, yet we were quite out of breath, and overcome by the sun, before we got up to it. Yet, what even now appears to me a matter of wonder is, *that as soon as we got a glimpse of the game, all this languor left us in an instant.* In fact, we each of us strove to fire before the other, so that we seemed entirely to have lost sight of all prudence and caution."

It is part of the same law, that the more agreeable the mental stimulus, the more benign is the nervous influence transmitted to the body.

An individual who has received from nature a large and tolerably active brain, but who, from possessing wealth sufficient to remove the necessity for labour, is engaged in no profession, and who has not enjoyed the advantages of a scientific or extensive education, and takes no interest in moral and intellectual pursuits for their own sake, is in general a victim to infringement of the natural laws. Persons of this description, ignorant of these laws, will, in all probability, neglect nervous and muscular exercise, and suffer the miseries arising from impeded circulation and impaired digestion. In entire want of every object on which the energy of their minds might be expended, the due stimulating influence of their brains on their bodies will be withheld, and the effects of muscular inactivity will be thereby aggravated: all the functions will, in consequence, become enfeebled; lassitude, uneasiness, anxiety, and a thousand evils, will arise; and life, in short, will become a mere endurance of punishment for infringement of institutions calculated in themselves to promote happiness and afford delight when known and obeyed. This fate frequently overtakes uneducated females, whose early days have been occupied with business or the cares of a family, but whose occupations have ceased before old age has diminished corporeal vigour: It overtakes men also, who, uneducated, retire from active business in the prime of life. In some instances, these evils accumulate to such a degree that the brain at length gives way, and insanity is the consequence.

It is worthy of remark, that the more elevated the objects of our study, the higher in the scale are the mental organs which are exercised; and that the higher the organs, the more pure and intense is the pleasure: hence, a vivacious and regularly supported excitement of the moral sentiments and intellect, is, by the organic law, highly favourable to health and corporeal vigour. In the fact of a living animal being able to retain life in an oven that will bake dead flesh, we see an illustration of the organic law rising above the purely physical; and, in the circumstance of the moral and intellectual organs transmitting the most favourable nervous influence to the whole bodily system, we have an example of the moral and intellectual law rising higher than the merely organic.

No person, after having his intellect imbued with a perception of, and belief in, the natural laws, as now explained, can possibly desire continued idleness as a source of pleasure; nor can he possibly regard muscular exertion and mental activity, when not carried to excess, as any thing else than enjoyments, kindly vouchsafed to him by the benevolence of the Creator. The notion that moderate labour and mental exertion are evils, can originate only from ignorance, or from viewing the effects of over-exhaustion as the result of the natural law, and not as the punishment for infringing it.

If, then, we sedulously inquire, in each particular instance, into the *cause* of the sickness, pain, and premature death, or the derangement of the corporeal frame in youth and middle life, which we see so common around us; and endeavour to discover whether it originated in obedience to the physical and organic laws, or sprang from infringement of them, we shall be able to form some estimate as to how far bodily suffering is justly attributable to imperfections of nature, and how far to our own ignorance and neglect of divine institutions.

The foregoing principles, being of much practical importance, may, with propriety, be elucidated by a few actual cases. Two or three centuries ago, various cities in Europe were depopulated by the plague, and, in particular, London was visited by an awful mortality from this cause, in the reign of Charles the Second. Most people of that age attributed the scourge to the inscrutable decrees of Providence, and some to the magnitude of the nation's moral iniquities. According to the views now presented, it must have arisen from infringement of the *organic laws*, and have been intended to enforce stricter obedience to them in future. There was nothing inscrutable in its causes or objects. These, when clearly analysed, appear to have had no direct reference to the moral condition of the people; I say *direct* reference to the moral condition of the people—because it would be easy to show that the physical, the organic, and all the other natural laws, are connected indirectly, and constituted in harmony, with the moral law; and that infringement of the latter often leads to disobedience of other laws, and brings a double punishment on the offender. The facts recorded in history exactly correspond with the theory now propounded. The following is a picture of the condition of the cities of Western Europe in the 15th century:—"The floors of the houses being commonly of clay, and strewed with rushes or straw, it is loathsome to think of the filth collected in the hovels of the common people, and sometimes in the lodgings even of the superior ranks, from spilled milk, beer, grease, fragments of bread, flesh, bones, spittle, excrements of cats, dogs, &c. To this Erasmus, in a letter 432, c. 1815, ascribes the plague, the sweating sickness, &c., in London, which in this respect resembled Paris and other towns of any magnitude in those times."—*Ranken's History of France*, vol. v. p. 416. The streets of London were excessively narrow, the habits of the people dirty, their food inferior, and no adequate provision was made for introducing a plentiful supply of water, or removing the filth unavoidably produced by a dense population. The great fire in that city, which happened soon after the pestilence, afforded an opportunity of remedying, in some degree, the narrowness of the streets; and habits of increasing cleanliness abated the filth: these changes brought the people to a closer obedience to the organic laws, and no plague has since returned. Again, till very lately, thousands of children died yearly of the small-pox; but, in our day, vaccine inoculation saves ninety-nine out of a hundred, who, under the old system, would have died. The theory of its operation has recently been elucidated by Dr Sonderland of Bremen, who has ascertained that cow-pox is merely a modification of small-pox, so that in preventing small-pox, it acts in accordance with the well-known law that certain diseases occur only once.

A gentleman, who died about twenty years ago at an advanced period of life, told me, that, six miles west from Edinburgh, the country was so unhealthy in his youth, that every spring the farmers and their servants were seized with fever and ague, and needed regularly to undergo bleeding, and a course of medicine, to prevent attacks, or remove their effects. At that time these visitations were believed to be sent by Providence, and to be inherent in the constitution of things. After, however, said my informant, an approved system of agriculture and draining was established, and the vast pools of stagnant water, formerly left between the ridges of the fields, were removed, dunghills carried to a dis-

tance from the doors, and the houses themselves made more spacious and commodious, every symptom of ague and marsh-fever disappeared from the district, and it became highly salubrious. In other words, as soon as the gross infringement of the organic laws was abated by a more active exertion of the muscular and intellectual powers of man, the punishment ceased. Another friend informed me, that, about fifty years ago, he commenced farming in a high and uncultivated district of East-Lothian; that the crops at first suffered severely from cold fogs; that the whole region, however, has been since reclaimed and drained; that the climate has greatly improved, and, in particular, that the destructive mists have disappeared. The same results have followed in Canada and the United States of America, from similar operations.

In like manner, many calamities occurred in coal-pits, in consequence of infringement of a physical law by introducing lighted candles and lamps into places filled with hydrogen gas, which had emanated from seams of coal, and which exploded, and scorched and suffocated the men and animals within its reach; until Sir Humphrey Davy discovered that the Creator had established such a relation between flame, wire-gauze, and hydrogen gas, that, by surrounding the flame with gauze, its power of exploding hydrogen was suspended. By the simple application of a covering of wire-gauze over and around the flame, it is prevented from igniting gas beyond it; and colliers are now able to carry, with safety, lighted lamps into places highly impregnated with inflammable air. I have been informed, that the accidents from explosion, which still occasionally occur in coal-mines, arise from neglecting to keep the lamps in perfect condition.

It is needless to multiply examples in support of the proposition, that the organised system of man, in itself, admits of a healthy existence from infancy to old age, provided its germ has been healthy, and its subsequent condition uniformly in harmony with the physical and organic laws. But it has been objected, that, although the human faculties may perhaps be adequate to discover these laws, and to record them in books, they are totally incapable of retaining them in the memory, and of formally applying them in every act of life. If, it is said, we could not move a step without calculating the effects of the law of gravitation and adjusting the body to its influence, and could never eat a meal without squaring our appetite by the organic laws, life would be oppressed by the pedantry of knowledge, and rendered miserable by the observance of trivial details. The answer to this objection is, that our faculties are adapted by the Creator to the external world, and act *instinctively* when their objects are properly placed before them. In walking during the day on a footpath in the country, we adjust our steps to the inequalities of the surface, without being overburdened by mental calculation. Indeed, we perform this adjustment with so little trouble, that we are not aware of having made *any particular* mental or muscular effort. But, on returning by the same path at night, when we cannot see, we stumble, and discover, for the first time, how important a duty our faculties had been performing during day, without our having adverted to their labour. Now, the simple medium of light is sufficient to bring clearly before our eyes the inequalities of the ground; but to make the mind equally familiar with the nature of the countless objects which abound in external nature, and their relations, an intellectual light is necessary, which can be struck out only by exercising and applying the knowing and reflecting faculties;—when that light is obtained, and the qualities and relationships in question are clearly perceived, our faculties, so long as the light lasts, *will act instinctively* in adapting our conduct to the nature of the objects, just as they do in accommodating our movements to the unequal surface of the earth. After the poisonous qualities of hemlock are known, it is no more necessary for us to go through a course of reasoning on physical, botanical, and chemical subjects, in order to be able to abstain from eating it, than it is to go through a course of mathematical investigation, before lifting the one foot higher than the other, in ascending a stair. At present, physical and political science, morals, and religion, are not taught as parts of one connected system; nor are the relations between them and the constitution of man pointed out to the world. Consequently, theoretical and practical knowledge are often widely separated. This ought not to be the case; for many advantages would flow from scientific education. Some of these would be the following:—

In the *first* place, the physical and organic laws, when truly discovered, appear to the mind as institutions of the Creator; wise and salutary in themselves, unbending in their operation, and universal in their application. They interest our intellectual faculties, and strongly impress our sentiments. The necessity of obeying them comes home to us with all the authority of a mandate from God. While we confine ourselves to mere recommendations to beware of damp, to observe temperance, or to take exercise, without explaining the *principle*, the injunction carries only the weight due to *the authority of the individual* who gives it, and is addressed to only two or three faculties—Veneration and Cautiousness, for instance, or Self-Love, in him who receives it. But if we be made acquainted with the elements of the physical world, and with those of our organised system—with the uses of the different parts of the human body, and the conditions necessary to their healthy action—with the causes of their derangement, and the pains consequent thereon; and if the obligation to attend to these conditions be enforced on our moral sentiments and intellect, as a duty which is imposed on us by the Creator, and which we cannot neglect without suffering punishment; then the motives to observe the physical and organic laws, as well as *the power of doing so*, will be prodigiously increased. Before we can dance well, not only must we *know the motions*, but our muscles must be trained to *execute them;* and, in like manner, to enable us to act on precepts, not only must we comprehend their meaning, but our intellects and sentiments must be disciplined into actual performance. Now, the very act of acquiring connected scientific information concerning the natural world, its qualities, and their relations, is to the intellect and sentiments what dancing is to the muscles: it *invigorates them;* and, as obedience to the natural laws must spring from them, exercise renders it more easy and delightful.

Secondly, It is only by being taught the *principle* on which consequences depend, that we become capable of perceiving the *invariableness* of the results of the physical and organic laws, acquire confidence in, and respect for, the laws themselves, and fairly endeavour to accommodate our conduct to their operation. Dr Johnson defines "principle" to be "fundamental truth; original postulate; first position from which others are deduced;" and in these senses I use the word. The human faculties are instinctively active, and desire gratification; but Intellect must have fixed data, on which to reason, otherwise it is itself a mere impulse. The man in whom Constructiveness and Weight are powerful, will naturally betake himself to constructing machinery; but if he be ignorant of the principles of mechanical science, he will not direct his efforts to such important ends, nor attain them with so much success, as if his intellect had been stored with this kind of knowledge. Scientific principles are deduced from the *laws* of nature. A man may make music by the instinctive impulses of Tune and Time; but there are immutable laws of harmony, of which if he be ignorant, he will not perform so correctly and in such good taste, as he would do if he knew them. In every art and science there are principles referable solely to the constitution of nature, but these admit of countless applications. A musician may produce gay, grave, solemn, or ludicrous tunes, all good of their kind, by following the laws of harmony; but he will never produce one good piece by violating them. While the inhabitants west of Edinburgh al-

lowed the stagnant pools to deface their fields, some seasons would be more healthy than others; and while the cause of the disease was unsuspected, this would confirm them in the notion that health and sickness were dispensed by an overruling Providence, on inscrutable principles, which they could not comprehend: but the moment the cause was known, it would be found that the most healthy seasons were those which were cold and dry, and the most sickly those which were warm and moist; and they would then discover, that the superior salubrity of one year, and unwholesomeness of another, were clearly referable to *one principle*; and after perceiving this truth, they would both be more strongly prompted to apply the remedy, and be rendered morally and intellectually more capable of doing so. If some intelligent friend had merely told them to drain their fields, and remove their dunghills, they would probably not have complied with his recommendation; but whenever their intellects were led to the perception that the evil would continue until they acted in this manner, the improvement would become easy.

The truth of these views may be still farther illustrated by examples. A young gentleman of Glasgow, whom I knew, went out, as a merchant, to North America. Business required him to sail from New York to St Domingo. The weather was hot, and he, being very sick, found the confinement below deck, in bed, as he said, intolerable; that is, this confinement was, for the moment, more painful than the course which he adopted, of laying himself down at full length on the deck, in the open air. He was warned by his fellow passengers, and the officers of the ship, that he would inevitably induce fever by his proceeding; but he was utterly ignorant of the physical and organic laws: his intellect had been trained to regard only wealth and present pleasure as objects of real importance; it could perceive no necessary connexion between exposure to the mild grateful sea-breeze of a warm climate, and fever; and he obstinately refused to quit his position. The consequence was, that he was soon taken ill, and died the day after arriving at St Domingo. Knowledge of chemistry and physiology would have enabled him, in an instant, to understand that the sea air, in warm climates, holds a prodigious quantity of water in solution, and that damp and heat, operating together on the human organs, tend to derange their healthy action, and ultimately to destroy them entirely: and if his sentiments had been deeply imbued with a feeling of the indispensable duty of yielding obedience to the institutions of the Creator, he would have actually enjoyed not only a *greater desire*, but a *greater power*, of supporting the temporary inconvenience of the heated cabin, and might by possibility have escaped death.

A medical gentleman, well known in the literary world, has favoured me with the following particulars, suggested by a perusal of the second edition of the present work:—On four several occasions I have nearly lost my life from infringing the organic laws. When a lad of fifteen, I brought on, by excessive study, a brain fever, which nearly killed me; at the age of nineteen I had an attack of peritonitis (inflammation of the lining membrane of the abdomen), occasioned by violent efforts in wrestling and leaping; while in France nine years ago, I was laid up with pneumonia (inflammation of the lungs), brought on by dissecting in the great galleries of La Pitié, with my coat and hat off in the month of December, the windows next to me being constantly open; and in 1829 I had a dreadful fever, occasioned by walking home from a party at which I had been dancing, in an exceedingly cold morning, without a cloak or great-coat. I was for four months on my back, and did not recover perfectly for more than eighteen months. All these evils were entirely of my own creating, and arose from a foolish violation of laws which every sensible man ought to observe and regulate himself by. Indeed, I have always thought—and your book confirms me more fully in the sentiment—that, by proper attention, crime and disease, and misery of every sort, could, in a much greater measure than is generally believed, be banished from the earth, and that the true method of doing so is to instruct people in the laws which govern their own frame."

Captain Murray, R. N., mentioned to Dr A. Combe, that, in his opinion, most of the bad effects of the climate of the West Indies might be avoided by care and attention to clothing; and that so satisfied was he on this point, that he had petitioned to be sent there in preference to the North American station, and had no reason to regret the change. The measures which he adopted, and their effects, are detailed in the following interesting and instructive letter:—

"My Dear Sir, Assynt, *April* 22, 1827.

"I should have written to you before this, had I not been anxious to refer to some memorandums, which I could not do before my return home from Coul. I attribute the great good health enjoyed by the crew of his Majesty's ship Valorous, when on the west India station, during the period I had the honour of commanding her, to the following causes:—1*st*, To the keeping the ship perfectly *dry* and *clean*; 2*d*, To habituating the men to the wearing of flannel *next* the *skin*; 3*d*, To the precaution I adopted, of giving each man a proportion of his allowance of cocoa *before* he left the ship in the *morning*, either for the purpose of watering, or any other duty he might be sent upon; and, 4*th*, To the cheerfulness of the crew.

"The Valorous sailed from Plymouth on the 24th December 1823, having just returned from the coast of Labrador and Newfoundland, where she had been stationed two years, the crew, including officers, amounting to 150 men. I had ordered the purser to draw two pairs of flannel drawers and two shirts extra for each man, as soon as I knew that our destination was the West Indies; and, on our sailing, I issued two of each to every man and boy in the ship, making the officers of each division responsible for the men of their respective divisions wearing these flannels during the day and night; and, at the regular morning nine o'clock musters, I inspected the crew personally; for you can hardly conceive the difficulty I have had in *forcing* some of the men to use flannel at first; although I never yet knew one who did not, from choice, adhere to it, when once fairly adopted. The only precaution after this was to *see* that, in bad weather, the watch, when relieved, did not turn in in their wet clothes, which the young hands were apt to do, if not looked after; and their flannels were shifted every Sunday.

"Whenever fresh beef and vegetables could be procured at the contract price, they were always issued in preference to salt provisions. Lime juice was issued whenever the men had been fourteen days on ship's provisions; and the crew took all their meals on the main deck, except in very bad weather.

"The quarter and main decks were scrubbed with sand and water, and wet holy-stones, every morning at daylight. The lower deck, cockpit, and store-rooms, were scrubbed every day after breakfast, with dry holy-stones and hot sand, until quite *white*, the sand being carefully swept up, and thrown overboard. The pump-well was also swabbed out dry, and then scrubbed with holy-stones and hot sand; and here, as well as in every part of the ship which was liable to damp, Brodie-stoves were constantly used, until every appearance of humidity vanished. The lower deck and cockpit were washed once every week in dry weather; but Brodie-stoves were constantly kept burning in them, until they were quite dry again.

"The hammocks were piped up and in the nettings, from 7 A.M. until dusk, when the men of each watch took down their hammocks alternately; by which means, only one-half of the hammocks being down at a time, the 'tween decks were not so crowded, and the watch relieved was sure of turning into a dry bed on going below. The bedding was aired every week once at least. The men were not permitted to go on

shore in the heat of the sun, or where there was a probability of their getting *spirituous liquors*; but all hands were indulged with a run on shore, when out of reach of such temptation.

"I was employed on the coast of Caraccas, the West India islands, and Gulf of Mexico; and, in course of service, I visited Trinidad, Margarita, Cocha, Cumana, Nueva Barcelona, Laguira, Porto Cabello, and Maracaibo, on the coast of Caraccas; all the West India islands from Tobago to Cuba, both inclusive; as also Caraçoa and Aruba, and several of these places repeatedly; also Vera Cruz and Tompico, in the Gulf of Mexico, which you will admit must have given a trial to the constitutions of my men, after two years among the icebergs of Labrador, without an intervening summer between that icy coast and the coast of Caraccas: yet I arrived in England on June 24th, without having buried a single man or officer belonging to the ship, or indeed having a single man on the sick list; from which I am satisfied that a *dry* ship will always be a healthy one in any climate. When in command of the Recruit, of 18 guns, in the year 1809, I was sent to Vera Cruz, where I found the — 46, the — 42, the — 18, and — gun-brig; we were joined by the — 36, and the — 18. During the period we remained at anchor (from 8 to 10 weeks), the three frigates lost from 30 to 50 men each, the brigs 16 to 18, the — most of her crew, with two different commanders; yet the Recruit, although moored in the middle of the squadron, and constant intercourse held with the other ships, did not lose a man, and had none sick. Now, as some of these ships had been as long in the West Indies as the Recruit, we cannot attribute her singularly healthy state to *seasoning*, nor can I to superior cleanliness, because even the breeches of the carronades, and all the pins, were polished bright in both — and —, which was not the case with the Recruit. Perhaps her healthy state may be attributed to cheerfulness in the men; to my never allowing them to go on shore in the morning on an empty stomach; to the use of dry sand and holy-stones for the ship; to never working them in the sun; perhaps to accident. Were I asked my opinion, I would say that I firmly believe that cheerfulness contributes more to keep a ship's company healthy, than any precaution that can be adopted; and that, with this attainment, combined with the precautions I have mentioned, I should sail for the West Indies with as little anxiety as I would for any other station. My Valorous fellows were as cheerful a set as I ever saw collected together."

Suppose that two gentlemen were to ascend one of the Scottish mountains, in a hot summer day, and to arrive at the top, bathed in perspiration, and exhausted with fatigue; that one of them knew intimately the physical and organic laws, and that, all hot and wearied as he was, he should button up his coat closer about his body, wrap a handkerchief about his neck, and continue walking, at a quick pace, round the summit, in the full blaze of the sun; but that the other, ignorant of these laws, should eagerly run to the base of a projecting cliff, stretch himself at full length on the turf under its refreshing shade, open his vest to the grateful breeze, and give himself up entirely to the present luxuries of coolness and repose: the former, by warding off the rapid chill of the cold mountain air, would descend with health unimpaired; while the latter would carry with him, to a certainty, the seeds of rheumatism, consumption, or fever, from permitting perspiration to be instantaneously checked, and the surface of the body to be cooled with an injurious rapidity. The death of the young Duke de Leuchtenberg, husband of Donna Maria, Queen of Portugal, affords a striking example of the operation of these principles. On Monday, the 23d of March 1835, he, in perfect health, went out to shoot. On returning to the palace, he imprudently threw off his coat and waistcoat, while yet in a state of profuse perspiration. This brought on a cold; slight at first, but which soon began to assume a serious character. On Friday the 27th, inflammation appeared; and, on Saturday the 28th, at twenty minutes past two P.M., he expired.

The following case, also illustrative of the points under consideration, is one which I had too good an opportunity of observing in all its stages.

An individual in whom it was my duty as well as pleasure to be greatly interested, resolved on carrying Mr Owen's views into practical effect, and set on foot an establishment on his principles, at Orbiston, in Lanarkshire. The labour and anxiety which he underwent at the commencement of the undertaking, gradually impaired an excellent constitution; and without perceiving the change, he, by way of setting an example of industry, took to digging with the spade, and actually wrought for fourteen days at this occupation, although previously unaccustomed to labour. This produced hæmoptysis, or spitting of blood. Being now unable for such severe exertion, he gave up his whole time to directing and instructing the people —about 250 in number—and for two or three weeks *spoke the whole day*, the effusion of blood from his lungs continuing. Nature sank rapidly under this irrational treatment, and at last he came to Edinburgh for medical advice. When the structure and uses of his lungs were explained to him, and when it was pointed out that his treatment of them had been equally injudicious as if he had thrown lime or dust into his eyes after inflammation, he was struck with the extent and consequences of his ignorance, and exclaimed, "How greatly should I have been benefited, if one month of the five years which I was forced to spend in a vain attempt to acquire a mastery over the Latin tongue, had been dedicated to conveying to me information concerning the structure of my body, and the causes which preserve and impair its functions!" He had departed too widely from the organic laws to admit of an easy return: he was seized with inflammation of the lungs, and with great difficulty got through that attack; but it impaired his constitution so grievously, that he died after a lingering illness of eleven months. He acknowledged, however, even in his severest pain, that he suffered under a just law. The lungs, he perceived, were of prime importance to life, and a motive to their proper treatment was provided in this tremendous punishment, inflicted for neglecting the conditions requisite to their health. Had he given them rest, and returned to obedience to the organic law, at the first intimation of departure from it, the way to health was open and ready to receive him; but, in utter ignorance, he persevered for weeks in direct opposition to that law, till the fearful result ensued.

This last case affords a striking illustration of a principle already more than once insisted on, *the independence of the different laws of the Creator*, and of the necessity of obeying *all* of them, as the only condition of safety and enjoyment. The individual here alluded to, was deeply engaged in a most benevolent and disinterested experiment for promoting the welfare of his fellow-creatures; and superficial observers would say that this was just an example of the inscrutable decrees of Providence, which visited him with sickness, and ultimately with death, in the very midst of his most virtuous exertions. But the institutions of the Creator are wiser than the imaginations of such men. The first condition on which existence on earth and all its advantages depend, is obedience to the physical and organic laws. The benevolent Owenite neglected these, in his zeal to obey the moral law; and since, if it were possible to dispense with the one by obeying the other, the whole scheme of man's existence would speedily be involved in inexplicable disorder, he was made to suffer the punishment of his neglect.

The following case was furnished to me by an actual observer:—A gentleman far advanced in years fell into a state of bodily weakness, which rendered necessary the constant presence of an attendant. A daughter, in whom the organs of Adhesiveness, Benevolence, and Veneration, were largely developed, devoted herself to this service with the most ceaseless

assiduity. She was his companion for month after month, and year after year—happy in cheering the last days of her respected parent, and knowing no pleasure equal to that of solacing and comforting him. For months in succession she went not abroad from the house; her duty became dearer to her the longer she discharged it, till at length her father became the sole object on earth of her feelings and her thoughts. The superficial observer would say that this conduct was admirable, and that she must have received a rich reward from Heaven for such becoming and virtuous devotion. But Providence rules on other principles, and never yields. Her enjoyment of mental happiness and vigour depended on the condition of her brain, and her brain was subject to the organic laws. These laws demand, as an indispensable condition of health, exercise in the open air, and variety of employment, calculated to maintain all the faculties in activity. She neglected the first in her constant attendance in her father's chamber; and she overlooked the second in establishing him as the exclusive object of her consideration. The result was, that she fell into bad health, accompanied by weakness of brain, extreme irritability and susceptibility of mind, excessive anxiety, hysteria, and even symptoms of insanity. Some judicious friends at last interfered, and, by forcing her to leave for a time, although much against her inclination, the object of her solicitude, rescued her from death, or confirmed mental derangement. If this case had been allowed to proceed uninterruptedly to its natural termination, many pious persons would have marvelled at the mysterious dispensations of Providence in afflicting so dutiful a daughter; whereas, when the principle of the divine government is understood, the result appears neither wonderful nor perplexing.

In the works of religious authors may be found many erroneous views of divine dispensations, traceable to ignorance of the natural laws. The Reverend Ebenezer Erskine, speaking of the state of his wife's mind, says, "For a month or two the arrows of the Almighty were within her, the poison whereof did drink up her spirits; and the terrors of God did set themselves in array against her." He called in the assistance of some neighbouring clergymen to join in prayers on her behalf, and she was induced to pray with them; but "she still continued to charge herself with the unpardonable sin, and to conclude that she was a cast-away." Such feelings occurring in a woman of blameless life, clearly indicated diseased action in the organs of Cautiousness. "Before she fell into these depths," he continues, "she told me that the Lord gave her such a discovery of the glory of Christ as darkened the whole creation, and made all things appear as dung and dross in comparison of him." These expressions indicate morbid excitement of the organs of Wonder and Veneration. She subsequently recovered her mental serenity; and her husband treats of the whole phenomena as purely mental and religious. He, however, afterwards incidentally mentions that she was subject to bad health, and that "melancholy was a great ingredient in her disease." We now know that melancholy is a diseased affection of the organs of Cautiousness.

At the time when Mr Erskine lived and wrote, the physiology of the brain was unknown; the occurrences which he describes had a real existence; and he had been taught to attribute them to the agency of the Divine Spirit, or the devil, according to their different characters. He is, therefore, not deserving of censure for the errors into which he unavoidably fell; but now when the facts which he describes, and analogous occurrences in our own day, can be traced to diseased action of the organs of the mind, we are authorised to view the providence of God in a different light. While it would be subversive of all religion to throw any doubt whatever on the reality and importance of religious feelings, sound in their character and directed to proper objects, it is nearly equally injurious to the sacred cause, to mistake the excitement and depression of disease for the influence of the Holy Spirit, or the agency of the enemy of mankind.

It is farther mentioned in the Life of Mr Erskine, that his wife bore several children to him while in precarious health, and that the situation "of the manse, or parsonage house, was *unwholesome.*" We are told, also, that in the year 1713, three of his children died; that one died in 1720; and that, in 1723, a fifth was on the brink of death, but recovered.* He treats of all these events as "severe trials" and "sore afflictions," without having the least glimpse of their true causes and objects, or their relation to the natural laws.

Another illustration will not be out of place. Hannah More, in a letter to the Rev. John Newton, dated Cowslip Green, 23d July 1788, says, "When I am in the great world, I consider myself as in an enemy's country, and as beset with snares, and this puts me upon my guard." "Fears and snares seem necessary to excite my circumspection; for it is certain that my mind has more languor, and my faith less energy here, where I have no temptations from without, and where I live in the full and constant perusal of the most beautiful objects of inanimate nature, the lovely wonders of the munificence and bounty of God. Yet in the midst of his blessings, I should be still more tempted to forget him, were it not for frequent nervous headaches and low fevers, which I find to be wonderfully wholesome for my moral health."†

This passage contains several propositions that merit attention. First, according to the natural laws, "the most beautiful objects of inanimate nature," and "the lovely wonders of the munificence and bounty of God," are calculated to invigorate the moral, religious, and intellectual faculties, in all well-constituted and rightly instructed minds; yet Hannah More's mind "had more languor, and her faith less energy," amidst such objects, than "when beset with snares:" Secondly, according both to the natural laws and scripture, "evil communications corrupt good manners;" but "when in the great world," and "in an enemy's country," her faith was improved: And, thirdly, "nervous headaches and low fevers" are the consequences of departures from the organic laws, and are intended to reclaim the sufferer to obedience that the pain may cease; yet she "found them wonderfully wholesome for her moral health," and they prevented her from "forgetting God!"

Only disease, or errors in education, could have produced such perverted experience in a woman so talented, so pious, and so excellent, as Hannah More. Can we wonder that the profane should sneer, and that practical religion should slowly advance, when piety exhibits itself in such lamentable contradiction to the divine institutions? And still more so, when, from proceeding on a false theory, it contradicts itself? Hannah More, in her Journal in 1794, says, "Confined this week with four days' headache—an unprofitable time—thoughts wandering—little communion with God. *I see by every fresh trial, that the time of sickness is seldom the season for religious improvement.* This great work should be done in health, or it will seldom be done well."—Vol. ii. p. 418. This passage is full of sound sense, but it contradicts her previous assertion, that "nervous headaches and low fevers were wonderfully wholesome for her moral health."

These examples, to which many more might be added, may serve as illustrations of the proposition, That without a philosophy of human nature, even religious authors, when treating of sublunary events, cannot always preserve consistency either with reason or with themselves; and that hence religion can never become thoroughly practical, or put forth its full energies for human improvement, until it is wedded to philosophy. In proportion as men shall become acquainted with the natural laws, and apply them as tests to theological writings relative to this world,

* Life and Diary of the Rev. Ebenezer Erskine. Edinburgh, 1831. pp. 266, 301, 286, 290, 320.

† Memoirs of H. More, vol. ii. p. 110, 111.

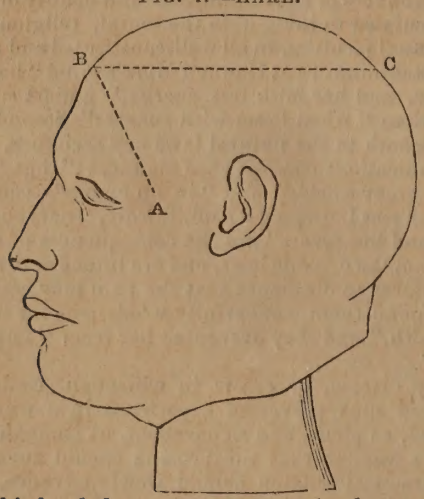
they will become convinced of the truth of this observation.

Having traced bodily suffering, in the case of individuals, to neglect of, or opposition to, the organic laws, by their progenitors or by themselves, I next advert to another set of calamities which may be called SOCIAL MISERIES, and which obviously spring from the same causes. And first, in regard to evils of a *domestic* nature:—

One fertile source of unhappiness arises from persons uniting in marriage, whose tempers, talents, and dispositions, do not harmonise. If it be true that natural talents and dispositions are connected by the Creator with particular configurations of brain, then it is obviously one of His institutions, that, in forming a compact for life, these configurations should be attended to. The following facts I regard to be fully established by competent evidence. The portion of the brain before the line AB, Fig. 1, manifests the intellect, that above BC manifests the moral sentiments, and all the rest the animal sentiments and propensities; and each part acts, *cæteris paribus*, with a degree of energy corresponding to its size. The following figures exhibit these regions of the head existing in different proportions in different individuals: and the lives of the persons represented bear testimony to their possessing the corresponding dispositions.

The first is a view of the head of William Hare, who, acting in concert with the notorious Burke, strangled sixteen individuals in Edinburgh, for the purpose of selling their bodies for dissection.

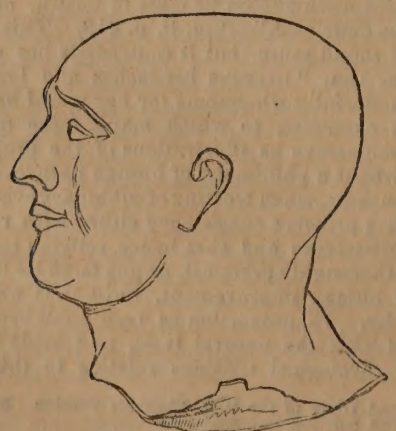
FIG. 1.—HARE.



In this head the organs of the animal propensities decidedly preponderate over those of the moral sentiments and intellect.

Another example of the same kind is afforded by the head of Williams, who was executed along with the notorious Bishop, in London, for the same crime as that of Hare.*

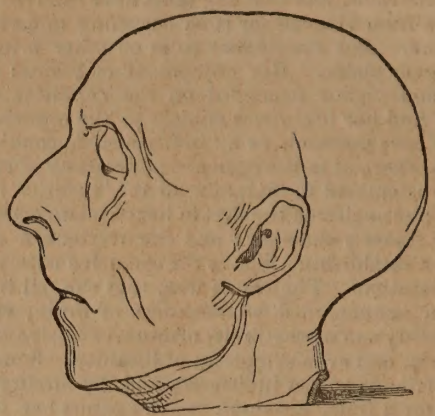
FIG. 2.—WILLIAMS.



* See Phrenological Journal, vol. vii. p. 416.

In the head of the celebrated Richard Brinsley Sheridan (of which a cast was taken after death), we find an example of the three regions of the brain in question, existing nearly in a state of equilibrium. The natural tendencies of such an individual are equally strong towards vice and virtue; and his actual conduct is generally determined by the influence of external circumstances.

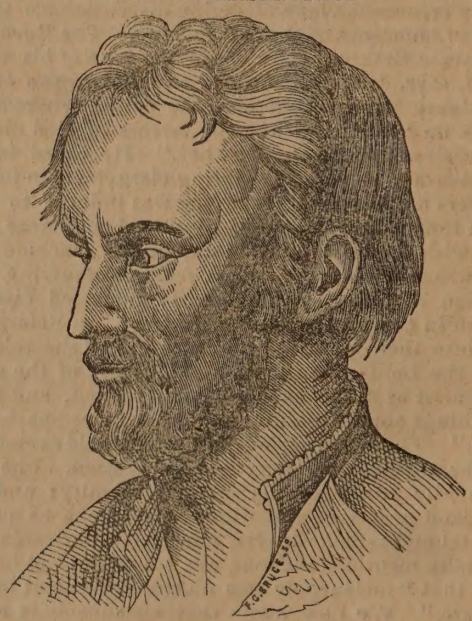
FIG. 3.—SHERIDAN.



The Life of Sheridan shows, that while he possessed high mental qualities, he was also the slave of degrading and discreditable vices.

The head of Philip Melancthon, the illustrious reformer and associate of Luther, furnishes an example of the decided predominance of the moral and intellectual regions over that of the animal propensities. The drawing is copied from a portrait by Albert Durer.

FIG. 4.—MELANCTHON.

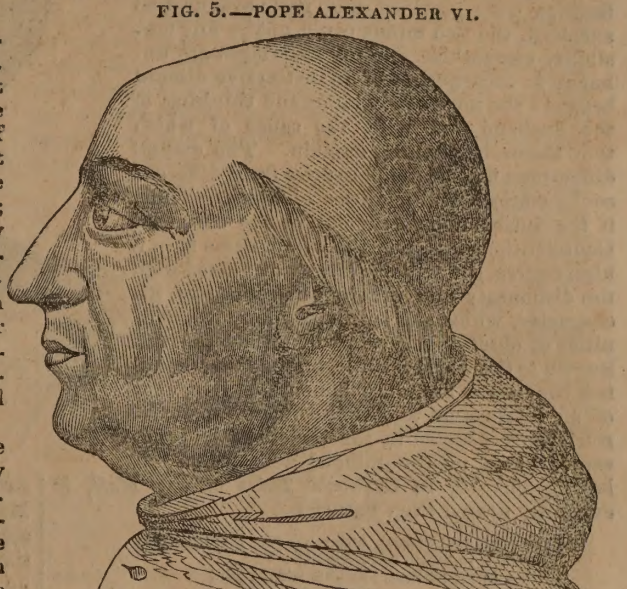


The following description of Melancthon's head and character is given in Dr Spurzheim's work on Phrenology in connexion with Physiognomy. "It is the brain of an extraordinary man. The organs of the moral and religious feelings predominate greatly, and will disapprove of all violence, irreverence, and injustice. The forehead betokens a vast and comprehensive understanding, and the *ensemble* a mind the noblest, the most amiable, and the most intellectual that can be conceived." "Never was any man more civil and obliging, and more free from jealousy, dissimulation, and envy, than Melancthon: he was humble, modest, disinterested in the extreme; in a word, he possessed wonderful talents, and most noble dispositions. His greatest enemies have been forced to acknowledge that the annals of antiquity exhibit very few worthies who may be compared with him, whether

extent of knowledge in things human and divine, or quickness of comprehension and fertility of genius, be regarded. The cause of true Christianity derived more signal advantages, and more effectual support, from Melancthon, than it received from any of the other doctors of the age. His mildness and charity, perhaps, carried him too far at times, and led him occasionally to make concessions that might be styled imprudent. He was the sincere worshipper of truth, but he was diffident of himself, and sometimes timorous without any sufficient reason. On the other hand, his fortitude in defending the right was great. His opinions were so universally respected, that scarcely any one among the Lutheran doctors ventured to oppose them. He was inferior to Luther in courage and intrepidity, but his equal in piety, and much his superior in learning, judgment, meekness, and humanity. He latterly grew tired of his life, and was particularly disgusted with the rage for religious controversies, which prevailed universally."*

With the head of Melancthon may be contrasted that of Pope Alexander VI.

FIG. 5.—POPE ALEXANDER VI.



"This cerebral organisation," says Dr Spurzheim, "is despicable in the eyes of a phrenologist. The animal organs compose by far its greatest portion. Such a brain is no more adequate to the manifestation of Christian virtues, than the brain of an idiot from birth to the exhibition of the intellect of a Leibnitz or a Bacon. The cervical and whole basilar region of the head are particularly developed; the organs of the perceptive faculties are pretty large; but the sincipital (or coronal) region is exceedingly low, particularly at the organs of Benevolence, Veneration, and Conscientiousness. Such a head is unfit for any employment of a superior kind, and never gives birth to sentiments of humanity. The sphere of its activity does not extend beyond those enjoyments which minister to the animal portion of human nature.

"Alexander VI. was, in truth, a scandal to the papal chair: from the earliest age he was disorderly and artful, and his life to the last was infamous. He is said to have bought the tiara by bribing a certain number of cardinals, or rather by making large promises, which he never fulfilled. It is well known that, when he became Pope, he had a family of five children, four boys and one daughter. He made a regular practice of selling bishoprics and other ecclesiastical benefices, to enrich himself and his family. Though profane and various religious writers do not all agree in their judgment concerning the disorderly conduct of this man, many atrocities committed by him are well ascertained facts. History will always accuse him of the crimes of poisoning, simony, and false-swearing, of reckless debauchery, nay, of incest with his own daughter. In political matters, he formed alliances with all the princes of his time, but his ambition and perfidy never failed to find him a pretext for breaking his word, and disturbing the peace." "As a singular example of Alexander's arrogance, his bull may be mentioned, by which he took upon him to divide the new world between the kings of Spain and Portugal, granting to the former all the territory on the west of an imaginary line passing from north to south, at one hundred leagues' distance from the Cape de Verd Islands. Alexander possessed eloquence and address, but a total lack of noble sentiments rendered him altogether unfit for his sacred station. Poisoned wine, which had been prepared for certain cardinals whose riches tempted the cupidity of his holiness, was given him by mistake, and ended his profligate career. Some writers have questioned the truth of this account of Alexander's death, but there is nothing in the relation inconsistent with the acknowledged character of this pontiff. Lowness of feelings and lowness of brain are seen together."*

As an additional illustration of this concluding remark, I subjoin a representation of the head of Vitellius, one of the most cruel and depraved of the Roman emperors.—[SEE NEXT PAGE.]

This head is very broad in proportion to its height; indicating a very great developement of the base of the brain, with deficiency of the organs of the moral sentiments.

The demarcations in Fig. 1. are not arbitrary. The space before A B corresponds to the anterior lobe of the brain; and the space above B C includes all the convolutions that lie on the upper surface of the brain, and rise higher than the organs of Cautiousness, corresponding to nearly the middle of the parietal bones, and of Causality, situated in the upper part of the forehead. It is generally not difficult to distinguish these regions; and a comparison of their relative proportions with the talents and dispositions of individuals, will convince any intelligent, honest, and accurate observer, of the truth of the foregoing statements. I have examined the heads or skulls, and casts of the heads or skulls, of several hundred criminals of various countries, and found them all to belong to the classes represented by the figures of the heads of Hare or of Sheridan; and I never saw one of them with a brain like that of Melancthon. Neither have I ever seen a man distinguished by moral and intellectual qualities like those of Melancthon, presenting a brain like that of Hare. The figures represent nature—not a casual appearance, but forms which are found constantly in combination with the qualities here named; and I ask why Nature, when she speaks to a geologist or chemist, should be listened to with profound attention, and her revelations treasured for human improvement—but scouted and despised when she speaks to and is interpreted by phrenologists? It is God who speaks from nature in all its departments: and the brain is as assuredly his workmanship as the Milky Way, with all its myriads of suns. If the doctrine before expounded be true, that every faculty is good in itself, that the folly and crime which disgrace human society spring from abuses of the faculties, and that the tendency to abuse them originates in the disproportion of certain parts of the brain to each other, and in ignorance of the proper mode of manifesting them, how completely do these considerations go to the root of theology and morals! At present the influence of organisation in determining the natural dispositions is altogether neglected or denied by the common school of divines, moralists, and philoso-

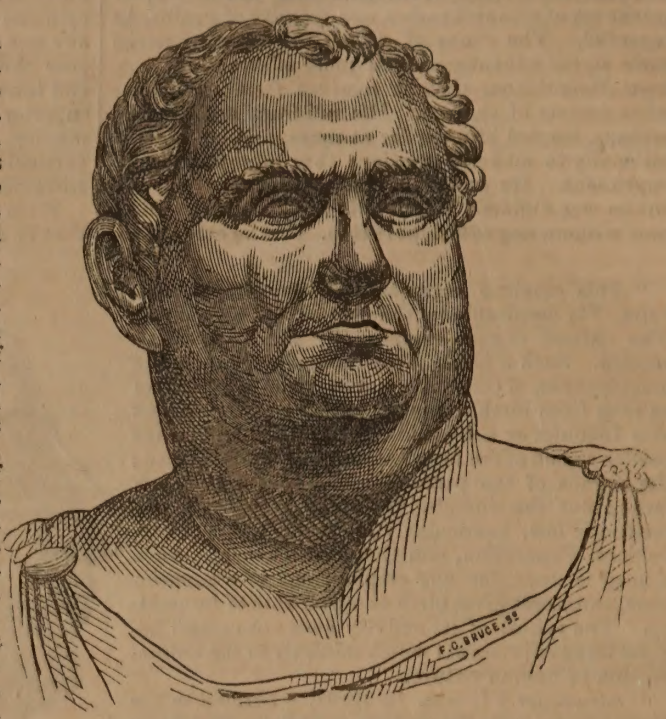
* The work above cited, p. 71.

* Phrenology in Connexion with the Study of Physiognomy, p. 163.

phers; yet it is of an importance exceeding all other terrestrial influences and considerations.

If, under the influence of youthful passion and inexperience, an individual endowed with the splendid cerebral developement of Melancthon, should unite himself for life to a female possessing a head like that of Hare, Williams, or Vitellius, the effects could not fail to be most disastrous, with respect both to his own happiness and to the qualities of his offspring. In the first place, after the animal feelings were gratified, and their ardour had subsided, the two minds could not by any possibility sympathise. Many marriages are unhappy in consequence of an instinctive discord between the modes of feeling and thinking of the husband and wife, the cause of which they themselves cannot explain. The mental differences will be found to arise from different configurations and qualities of brain. Thus, if the husband be deficient in the organ of Conscientiousness, and the wife possess it in a high degree, she will be secretly disgusted with the dishonesty and inherent falsehood of his character, which she will have many opportunities of observing, even when they are unknown to the world; while, on the other hand, few conditions are more lamentable than that of an intellectual and well-educated man, irretrievably doomed to the society of an ignorant, jealous, narrow-minded wife. The following picture, in Crabbe's *Tales of the Hall*, is evidently drawn from nature:—

FIG 6.—VITELLIUS.



Five years had passed, and what was Henry then?
The most repining of repenting men;
With a fond, teasing, anxious wife, afraid
Of all attention to another paid:
Yet powerless she her husband to amuse,
Lives but t' entreat, implore, resent, accuse:
Jealous and tender, conscious of defects,
She merits little, and yet much expects;
She looks for love that now she cannot see,
And sighs for joy that never more can be.
On his retirements her complaints intrude,
And fond reproof endears his solitude:
While he her weakness (once her kindness) sees,
And his affections in her languor freeze.
Regret, unchecked by hope, devours his mind;
He feels unhappy, and he grows unkind.
"Fool, to be taken by a rosy cheek,
And eyes that cease to sparkle or to speak;
Fool! for this child my freedom to resign,
When one the glory of her sex was mine;
While from this burthen to my soul I hide,
To think what Fate has dealt, and what denied.
What fiend possessed me when I tamely gave
My forced assent to be an idiot's slave?
Her beauty vanished, what for me remains?
Th' eternal clicking of the galling chains."

"What," says Dr Johnson, "can be expected but disappointment and repentance from a choice made in the immaturity of youth, in the ardour of desire, without judgment, without foresight, without inquiry after conformity of opinions, similarity of manners, rectitude of judgment, or purity of sentiment? Such is the common process of marriage. A youth and maiden meeting by chance, or brought together by artifice, exchange glances, reciprocate civilities, go home, and dream of one another. Having little to divert attention, or diversify thought, they find themselves uneasy when they are apart, and therefore conclude that they shall be happy together. They marry, and discover what nothing but voluntary blindness before had concealed; they wear out life in altercations, and charge nature with cruelty."—(*Rasselas, ch.* 29.)

Until Phrenology was discovered, no natural index to mental qualities, that could be safely relied on, was possessed, and each individual, in directing his conduct, was left to the guidance of his own sagacity. But the natural law never bended one iota to accommodate itself to that state of ignorance. Men suffered from unsuitable alliances; and they will continue to do so, until they shall avail themselves of the means of judging afforded by Phrenology, and act in accordance with its dictates. In the play of the Gamester, Mrs Beverly is represented as a most excellent wife, acting habitually under the guidance of the moral sentiments and intellect, but married to a being who, while he adores her, reduces her to beggary and misery. His sister utters an exclamation to this effect:—Why did just Heaven unite such an angel to so heartless a thing! The parallel of this case occurs too often in real life; only it is not "just Heaven" that makes such matches, but ignorant and thoughtless human beings, who imagine themselves absolved from all obligation to study and obey the laws of Heaven, as announced in the general arrangement of the universe.

The justice and benevolence of rendering the individuals themselves unhappy, who neglect this great institution of the Creator, will become more striking, when, in the next place, we consider *the effects, by the organic law, of such conduct on the children of these ill-assorted unions.*

Physiologists, in general, are agreed, that a vigorous and healthy constitution of body in the parents, communicates existence in the most perfect state to the offspring, and *vice versa.* The transmission of various diseases from parents to children is a matter of universal notoriety: thus consumption, gout, scrofula, hydrocephalus, rheumatism, and insanity, are well known as maladies which descend from generation to generation. Strictly speaking, it is not *disease* which is transmitted, but organs of such imperfect structure that they are unable to perform their functions properly, and so weak as to be easily put into a morbid condition by causes which sound organs are able to resist. Blindness is often, though not uniformly, a hereditary defect. There is a family in North America, some individuals of which have been affected with blindness for the last hundred years.* A medical friend writes:—"I have known more than one instance of blindness descending in families; and have also known instances where the parents were blind without the children labouring under this infliction."

Form, size, and quality of the brain, like those of other parts of the body, are transmissible from parents to children; and hence dispositions and talents are transmissible also, as has been long remarked, not only by medical authors, but by attentive observers in general:—

* New York Medical Repository, vol. iii. No. I.

Fortes creantur fortibus et bonis;
Est in juvencis, est in equis patrum
Virtus: nec imbellem feroces
Progenerant aquilæ columbam.*

The following remarks, by Professor John Gregory, are extracted from his Comparative View of the State and Faculties of Man with those of the Animal World. "By a proper attention we can preserve and improve the breed of horses, dogs, cattle, and indeed all other animals. Yet it is amazing this observation was never transferred to the human species, where it would be equally applicable. It is certain that, notwithstanding our promiscuous marriages, many families are distinguished by peculiar circumstances in their character. This family character, like a family face, will often be lost in one generation, and appear again in the succeeding. Without doubt, education, habit, and emulation, may contribute greatly in many cases to keep it up; but it will be generally found, that, independent of these, Nature has stamped an original impression on certain minds, which education may greatly alter or efface, but seldom so entirely as to prevent its traces being seen by an accurate observer. How a certain character or constitution of mind can be transmitted from a parent to a child, is a question of more difficulty than importance. It is indeed equally difficult to account for the external resemblance of features, or for bodily diseases being transmitted from a parent to a child. But we never dream of a difficulty in explaining any appearance of nature which is exhibited to us every day. A proper attention to this subject would enable us to improve not only the constitutions but the characters of our posterity. Yet we every day see very sensible people, who are anxiously attentive to preserve or improve the breed of their horses, tainting the blood of their children, and entailing on them not only the most loathsome diseases of the body, but madness, folly, and the most unworthy dispositions, and this too when they cannot plead being stimulated by necessity, or impelled by passion."†

Dr James Gregory also, in treating of the temperaments in his *Conspectus Medicinæ Theoreticæ*, says, "Hujusmodi varietates non corporis modò, verùm et animi quoque, plerumque congenitæ, nonnunquam hæreditariæ, observantur. Hoc modo parentes sæpe in prole reviviscunt; certè parentibus liberi similes sunt, non vultum modò et corporis formam, sed animi indolem, et virtutes, et vitia. Imperiosa gens Claudia diu Romæ floruit, impigra, ferox, superba; eadem illachrymabilem Tiberium, tristissimum tyrannum, produxit; tandem in immanem Caligulam, et Claudium, et Agrippinam, ipsumque demum Neronem, post sexcentos annos, desitura."‡—Cap. i. sect. 16.

A celebrated French writer, who has written much sound as well as false philosophy, observes, that "physical organisation, of which moral is the offspring, transmits the same character from father to son through a succession of ages. The Apii were always haughty and inflexible, the Catos always severe. The whole line of the Guises were bold, rash, factious; compounded of the most insolent pride and the most seductive politeness. From Francis de Guise to him who alone and in silence went and put himself at the head of the people of Naples, they were all, in figure, in courage, and in turn of mind, above ordinary men. I have seen whole-length portraits of Francis de Guise, of the Balafré, and of his son: they are all six feet high, with the same features, the same courage and boldness in the forehead, the eye, and the attitude. This continuity, this series of beings alike, is still more observable in animals; and if as much care were taken to perpetuate fine races of men, as some nations still take to prevent the mixing of the breeds of their horses and hounds, the genealogy would be written in the countenance and displayed in the manners."*

Dr King, in speaking of the fatality which attended the House of Stuart, says, "If I were to ascribe their calamities to another cause (than an evil fate), or endeavour to account for them by any natural means, I should think they were chiefly owing to a certain *obstinacy of temper*, which appears to have *been hereditary and inherent* in all the Stuarts, except Charles II."

It is well known that the caste of the Brahmins is the highest in point of intelligence as well as rank of all the castes in Hindostan; and it is mentioned by the missionaries as an ascertained fact, that *their* children are naturally more acute, intelligent, and docile, than the children of the inferior castes, age and other circumstances being equal.

Dr John Mason Good observes, that "stupidity, like wit, is propagable; and hence we frequently see it run from one generation to another, and not unfrequently it forms a distinctive mark in the mental character of districts or nations—in many cases, indeed, where they border closely on each other."†

The character of the mother seems to have the chief influence in determining the qualities of the children, particularly where she has much force of character, and is superior in mental energy to her husband. There is perhaps no instance of a man of distinguished vigour and activity of mind whose mother did not display a considerable amount of the same qualities; and the fact of eminent men having so frequently children far inferior to themselves, is, in most cases, explicable by the circumstance that men of talent often marry women whose minds are comparatively weak. When the mother's brain is very defective, the minds of the children are inevitably feeble. "We know," says Haller, "a very remarkable instance of two noble females, who got husbands on account of their wealth, although they were nearly idiots, and from whom this mental defect has extended for a century into several families, so that some of all their descendants still continue idiots in the fourth and even in the fifth generation."‡ In many families, the qualities of both father and mother are seen blended in the children. "In my own case," says a medical friend, "I can trace a very marked combination of the qualities of both parents. My father is a large-chested, strong, healthy man, with a large but not active brain;—my mother was a spare, thin woman, with a high nervous temperament, a rather delicate frame, and a mind of uncommon activity. Her brain I should suppose to have been of moderate size. I often think that to the father I am indebted for a strong frame and the enjoyment of excellent health, and to the mother for activity of mind and an excessive fondness for exertion. These things, and a hundred more, have been brought to my mind by the perusal of the Constitution of Man." Finally, it often happens that the mental peculiarities of the father are transmitted to some of the children, and those of the mother to others.

Phrenology reveals the principle on which dispositions and talents are thus hereditary. Mental qualities are determined by the size, form, and constitution of the brain. The brain is a portion of our organised system, and, as such, is subject to the organic laws, by one of which, as already observed, its form, size, and qualities, are transmitted by hereditary descent. This law, however faint or obscure it may appear in individual cases, becomes absolutely undeniable in nations. When we place the collection of Hindoo, Carib, Esquimaux, Peruvian, and Swiss skulls, possessed by the Phrenological Society, in juxtaposition, we perceive a national form and combination of organs in each, actually obtruding itself upon our notice, and corresponding with the mental characters of the re-

* The brave are born of the brave and good: in cattle and in horses the good qualities of the race are discernible, and it is never found that eagles give birth to doves.——Hor. l. iv od. 4.

† Comparative View, &c. 3d edit. Lond. 1776, pp. 18, 19.

‡ "Peculiarities not of body merely, but also of the mind, are for the most part observed to be congenital, and not unfrequently hereditary. Parents often revive in their offspring, who resemble them not only in countenance and form of body, but in the dispositions of the mind, in virtues and in vices. The imperious Claudian family flourished in Rome, courageous, ferocious, and proud: it produced the pitiless tyrant Tiberias, and at length, in the monstrous Caligula, Claudius, Agrippina, and finally Nero, became extinct."

* Voltaire's Philosophical Dictionary, Art. CATO.

† Study of Medicine, 2d edit. vol. iv. p. 187.

‡ Elem. Physiol. lib. xxix. sect. 2, § 8.

spective tribes; the cerebral developement of one tribe is seen to differ as widely from that of another, as the European mind does from that of the Carib. Here, then, each Hindoo, Esquimaux, Peruvian, and Carib, obviously inherits from his parents a certain general type of head; and so does each European. And if the general forms and proportions are thus so palpably transmitted, can we doubt that the individual varieties follow the same rule, modified slightly by causes peculiar to the parents of the individual? The differences of national *character* are equally conspicuous as those of national *brains*, and it is surprising how permanently both endure. It is observed by an author cited in the *Edinburgh Review*, that "the Vincentine district is, as every one knows, and has been for ages, an integral part of the Venetian dominions, professing the same religion, and governed by the same laws, as the other continental provinces of Venice: yet the English character is not more different from the French, than that of the Vincentine from the Paduan; while the contrast between the Vincentine and his other neighbour, the Veronese, is hardly less remarkable."—No. lxxxiv. p. 459. See Appendix, No. V.

A striking and undeniable proof of the effect on the character and dispositions of children, produced by the form of brain transmitted to them by hereditary descent, is to be found in the progeny of marriages between Europeans, whose brains possess a favourable developement of the moral and intellectual organs, and Hindoos and native Americans, whose brains are inferior. All authors agree, and report the circumstance as singularly striking, that the children of such unions are decidedly superior in mental qualities to the native, while they are still inferior to the European parent. Captain Franklin says, that the half-breed American Indians "are upon the whole a good-looking people, and, where the experiments have been made, have shown much expertness in learning, and willingness to be taught: they have, however, been sadly neglected."— *First Journey*, p. 86. He adds, "It has been remarked, I do not know with what truth, that half-breeds show more personal courage than the pure breeds." Captain Basil Hall, and other writers on South America, mention, that the offspring of aboriginal and Spanish parents constitute the most active, vigorous, and powerful portion of the inhabitants of these countries, and that many of them rose to high commands during the revolutionary war. So much is this the case in Hindustan, that several writers have already pointed to the mixed race there, as obviously destined to become the future sovereigns of India. These individuals inherit from the native parent a certain adaptation to the climate, and from the European parent a higher developement of brain; the two combined constituting their superiority.

Another example of the same law occurs in Persia. It is said, that in that country the custom has existed for ages among the nobles, of purchasing beautiful female Circassian and Georgian captives, and forming alliances with them as wives. It is ascertained that the Circassian and Georgian form of brain stands comparatively high in the developement of the moral and intellectual organs.* And it is mentioned by some travellers, that the race of nobles in Persia is the most gifted in natural qualities, bodily and mental, of any class in that country; a fact diametrically opposite to that which takes place in Spain, and other European countries, where the nobles intermarry constantly with each other, and set the organic laws altogether at defiance. It is a general rule, to which I shall afterwards more fully advert, that close affinity of parents produces a deteriorating influence on the children. The degeneracy and even idiocy of some of the noble and royal families of Spain and Portugal, from marrying nieces and other near relations, is well known; and defective brains, in all these cases, may be observed.

If, then, form, size, and constitution of brain, are transmitted from parents to children, and if these determine natural mental talents and dispositions, which in their turn exercise the greatest influence over the happiness of individuals through the whole of life, it becomes extremely important to discover according to what laws this transmission takes place. At the first aspect of the question, three principles present themselves to our consideration. Either in the *first* place, the constitution, size, and configuration of brain, which the parents themselves inherited at birth, are transmitted absolutely, so that the children, sex following sex, are exact copies, without variation or modification, of the one parent or the other; or, *secondly*, the natural and inherent qualities of the father and mother combine, and are transmitted in a modified form to the offspring; or, *thirdly*, the qualities of the children are determined jointly by the constitution of the stock, and by the faculties which predominate in power and activity in the parents at the particular time when the organic existence of each child commences.

Experience shows that the *first* cannot be the law: for, as often mentioned, a real law of nature admits of no exceptions; and it is well established, that the minds of children are *not exact copies*, without variation or modification, of those of the parents, sex following sex. Neither can the *second* be the law; because it is equally certain that the minds of children, although *sometimes, are not always*, in talents and dispositions, exact blended reproductions of the father and mother. If this law prevailed, no child would be a copy of the father, none a copy of the mother or of any collateral relation; but each would be invariably a compound of the two parents, and all the children would be exactly alike, sex alone excepted. Experience shows that this is not the law. What, then, does experience say to the *third* idea, that the mental character of each child is determined by the particular qualities of the stock, combined with those which predominate in the parents when its existence commenced?

I have already adverted to the influence of the stock, and shall now illustrate that of the condition of the parents, when existence is communicated. For this purpose we may consider, 1*st*, The transmission of *factitious or temporary conditions of the body*; 2*dly*, The transmission of *acquired habits*; 3*dly*, The appearance of *peculiarities in children, in consequence of impressions made on the mind of the mother*; and, 4*thly*, The transmission of *temporary mental and bodily qualities*.

1. With respect to the first of these topics, Dr Prichard, in his Researches into the Physical History of Mankind, states the result of his investigations to be, *first*, That the organisation of the offspring is always modelled according to the type of the *original structure* of the parent; and, *secondly*, "That changes produced by external causes in the appearance or constitution of the individual are temporary; and, in general, acquired characters are transient; they terminate with the individual, and have no influence on the progeny.—Vol. ii, p. 536. He supports the first of these propositions by a variety of facts occurring "in the porcupine family," "in the hereditary nature of complexion," and "in the growth of supernumerary fingers or toes, and corresponding deficiencies." "Maupertuis has mentioned this phenomenon; he assures us that there were two families in Germany, who have been distinguished for several generations by six fingers on each hand, and the same number of toes on each foot," &c. Dr Prichard admits, at the same time, that the *second* proposition is of more difficult proof, and that "an opinion contrary to it has been maintained by some writers, and a variety of singular facts have been related in support of it." But many of these relations, as he justly observes, are obviously fables. The following facts, however, certainly militate against it.

A man's first child was of sound mind; afterwards

* In Mr W. Allan's picture of the Circassian Captives, the form of the head is said to be a copy from nature, taken by that artist when he visited the country. It is engraved by Mr James Stewart with great beauty and fidelity, and may be consulted as an example of the superiority of Circassian developement of the brain.

he had a fall from his horse, by which his head was much injured. His next two children proved to be both idiots. After this he was trepanned, and had other children, and they turned out to be of sound mind. This case was communicated to me by a medical practitioner of Douglas, in the Ise of Man.

"In Europe," says a late writer, "the constant practice of milking cows has enlarged the udder greatly beyond its natural size, and so changed the secretions that the supply does not cease when the calf is removed. In Colombia, where circumstances are entirely different, nature shows a strong tendency to assume its original type; a cow gives milk there only while the calf is with her."*

2. There are some curious facts which seem to prove that *acquired habits* are hereditary, at least in the inferior animals. A strong illustration is quoted in the Edinburgh Review, No. lxxxiv. p. 457.

"Every one conversant with beasts," says the writer, "knows, that not only their natural, but many of their acquired qualities, are transmitted by the parents to their offspring. Perhaps the most curious example of the latter fact may be found in the pointer.

"This animal is endowed with the natural instinct of winding game, and stealing upon his prey, which he surprises, having first made a short pause, in order to launch himself upon it with more security of success. This sort of *semicolon* in his proceedings, man converts into a *full stop*, and teaches him to be as much pleased at seeing the bird or beast drop by the shooter's gun, as at taking it himself. The staunchest dog of this kind, and the original pointer, is of Spanish origin, and our own is derived from this race, crossed with that of the foxhound, or other breed of dog, for the sake of improving his speed. This mixed and factitious race, of course, naturally partakes less of the true pointer character; that is to say, is less disposed to stop, or at least he makes a shorter stop at game. *The factitious pointer is, however, disciplined in this country, into staunchness; and, what is most singular, this quality is, in a great degree, inherited by his puppy*, who may be seen earnestly standing at swallows or pigeons in a farm-yard. For intuition, though it leads the offspring to exercise his parent's faculties, does not instruct him how to direct them. The preference of his master afterwards guides him in his selection, and teaches him what game is better worth pursuit. On the other hand, the pointer of pure Spanish race, unless he happen to be well broke himself, which in the south of Europe seldom happens, produces a race which are all but unteachable, according to our notions of a pointer's business. They will make a stop at their game, as natural instinct prompts them, but seem incapable of being drilled into the habits of the animal which education has formed in this country, and has rendered, as I have said, in some degree capable of transmitting his acquirements to his descendants."

"Acquired habits are hereditary in other animals besides dogs. English sheep, probably from the greater richness of our pastures, feed very much together; while Scotch sheep are obliged to extend and scatter themselves over their hills, for the better discovery of food. Yet the English sheep, on being transferred to Scotland, *keep their old habit of feeding in a mass*, though so little adapted to their new country: so do their descendants; and the English sheep is not thoroughly naturalised into the necessities of his place *till the third generation*. The same thing may be observed as to the nature of his food that is observed in his mode of seeking it. When turnips were introduced from England into Scotland, *it was only the third generation* which heartily adopted this diet, the first having been starved into an acquiescence in it."

The author of the article America, in the Encyclopædia Britannica (7th edit. vol. ii. p. 653) says, "It is worthy of notice, that the amble, the pace to which the domestic horse in Spanish America is exclusively trained, becomes in the course of some generations hereditary, and is assumed by the young ones without teaching."

3. *Impressions on the mind of the mother*, especially those received through the senses, often produce a palpable effect on the offspring. On this subject Dr Prichard observes, "The opinion which formerly prevailed, and which has been entertained by some modern writers, among whom is Dr Darwin, that at the period when organisation commences in the ovum, that is, at or soon after the time of conception, the structure of the fœtus is capable of undergoing modification from impressions on the mind or senses of the parent, does not appear altogether so improbable. It is contradicted, at least, by no fact in physiology. It is an opinion of very ancient prevalence, and may be traced to so remote a period, that its rise cannot be attributed to the speculations of philosophers, and it is difficult to account for the origin of such a persuasion, unless we ascribe it to facts which happened to be observed."—P. 556.

The following case fell under my own observation:—W. B. shoemaker in Portsburgh, called and showed me his son, aged 18, who is in a state of idiocy. He is simple and harmless, but never could do any thing for himself. His father said that his wife was in sound mind; that he has other three children all sound; and that the only account he could ever give of the condition of this son was, that he kept a public-house; and some months before the birth of this boy, an idiot lad came round with a brewer's drayman, and helped him to lift the casks off the cart; that that idiot made a strong impression on his wife; that she complained that she could not get his appearance removed from her mind, and that she kept out of the way when he came to the house afterwards; and that his son was weak in body from birth, and silly in mind, and had the slouched and slovenly appearance of the idiot.

"It is peculiarly lamentable to observe," says Dr Mason Good, in reference to deafness and dumbness, "that when the defect has once made an entrance into a family, whether from the influence it produces on the nervous system of the mother, or from any other less obvious cause, it is peculiarly apt to become common to those children which are born afterwards; insomuch that we often meet with a third, or a half, and in a few instances, where the first-born has been thus affected, with every individual of the progeny, suffering from the same distressing evil. 'The late investigation in Ireland discovered families in which there were two, three, four, or more, thus circumstanced. In one family there were five children all deaf and dumb, in another seven, in another ten; and in that of a poor militia officer on half-pay, there were nine born deaf and dumb in succession.'—(*Quart. Jour. of Foreign Med.*, vol. i. p. 321.) Yet it is consoling to reflect, that the instances are very rare indeed, in which the same defect has been propagated to a succeeding generation, when the deaf-dumb have married, and even when both the husband and wife have been thus afflicted."*

The following additional facts are mentioned in the Athenæum:—"Many persons who have never known any, or perhaps not more than one, deaf and dumb individual in the immediate circle in which they lived, would be astonished to read the lists of applications circulated by the committee for the asylum in the Kent Road, so ably conducted by Mr Watson, which usually contain nearly a hundred names. The most remarkable fact, however, which these lists present, is the number of deaf and dumb children frequently found in the same families, evidently in consequence of the continued operation of some unknown cause connected with the parents. Three, four, and five, deaf and dumb children are not uncommonly met with in one family, and in some instances there have been as many as seven. In the family of Martin, a labourer, out of ten children seven were deaf and dumb; in the family of Kelly, a porter, seven out of eight

* Encyclop. Brit., 7th edit. vol. ii. p. 653. Article *America*.

* Good's Study of Medicine, 2d edit. i. 506.

were deaf and dumb; and in the family of Aldum, a weaver, six out of twelve were deaf and dumb. The result of a table of twenty families, given in the 'Historical Sketch of the Asylum,' published by Powell, Dowgate-hill, is ninety deaf and dumb out of one hundred and fifty-nine children."*

A medical friend says, "Several of the children of a clergyman, in the west of Scotland, have been born blind. I know a family of six individuals—four girls and two boys. All the girls were born blind, while the boys see perfectly. Both parents had good eyesight, so far as I can learn. These are curious facts, and not easily explained." Portal states, that "Morgagni has seen three sisters dumb '*d'origine.*' Other authors also cite examples, and I have seen like cases myself." In a note, he adds, "I have seen three children out of four of the same family blind from birth by amaurosis, or *gutta serena.*"—*Portal, Mémoires sur Plusieurs Maladies*, tom. iii. p. 193. Paris, 1808.

Dr Prichard, in his "Researches," already quoted, observes, "Children resemble, in feature and constitution, both parents, but, I think, more generally the father. In the breeding of horses and oxen, great importance is attached, by experienced propagators, to the male. In sheep, it is commonly observed that black rams beget black lambs. In the human species also, the complexion chiefly follows that of the father; and I believe it to be a general fact, that the offspring of a *black father* and white mother is *much darker* than the progeny of a *white father* and a dark mother."—Vol. ii. p. 551.† These facts appear to me to be referable to both causes. The stock must have had some influence, but the mother, in all these cases, is not impressed by her own colour, because she does not look on herself; while the *father's* complexion must strikingly attract her attention, and may, in this way, give the darker tinge to the offspring.‡

4. The idea of the transmission of *temporary mental and bodily qualities*, is supported by numerous facts tending to show that the state of the parents, particularly of the mother, at the time when the existence of the child commences, has a strong influence on its talents, dispositions, and health.

The father of Napoleon Buonaparte, says Sir Walter Scott, "is stated to have possessed a very handsome person, a talent for eloquence, and a vivacity of intellect, which he transmitted to his son." "It was in the middle of civil discord, fights, and skirmishes, that Charles Buonaparte married Lætitia Ramolini, one of the most beautiful young women of the island, and possessed of a great deal of firmness of character. She partook of the dangers of her husband during the years of civil war, and is said to have accompanied him on horseback on some military expeditions, or perhaps hasty flights, shortly before her being delivered of the future emperor."—*Life of Napoleon Buonaparte*, vol. iii. p. 6.

The murder of David Rizzio was perpetrated by armed nobles, with many circumstances of violence and terror, in the presence of Mary Queen of Scotland, shortly before the birth of her son, afterwards James the First of England. The constitutional liability of this monarch to emotions of fear, is recorded as a characteristic of his mind; and it has been mentioned that he even started involuntarily at the sight of a drawn sword. Queen Mary was not deficient in courage, and the Stuarts, both before and after James the First, were distinguished for this quality; so that his dispositions were an exception to the family character. Napoleon and James form striking contrasts; and it may be remarked, that the mind of Napoleon's mother appears to have risen to the danger to which she was exposed, and braved it; while the circumstances in which Queen Mary was placed, were such as inspired her with fear.

Esquirol, a celebrated French medical writer, in adverting to the causes of madness, mentions that many children, whose existence dated from periods when the horrors of the French Revolution were at their height, turned out subsequently to be weak, nervous, and irritable in mind, extremely susceptible of impressions, and liable to be thrown, by the least extraordinary excitement, into absolute insanity.

A lady of considerable talent wrote as follows to a phrenological friend:—"From the age of two I foresaw that my eldest son's restlessness would ruin him; and it has been even so. Yet he was kind, brave, and affectionate. I read the Iliad for six months before he saw the light, and have often wondered if that could have any influence on him. He was actually an Achilles."*

The following particulars have been communicated to me by the medical friend already alluded to. "I know an old gentleman," says he, "who has been twice married. The children of his first marriage are strong, active, healthy people, and their children are the same. The produce of his second marriage are very inferior, especially in an intellectual point of view; and the younger the children are, the more is this obvious. The girls are superior to the boys, both physically and intellectually: indeed, their mother told me that she had great difficulty in rearing her sons, but none with her daughters. The gentleman himself, at the time of his second marriage, was upwards of sixty, and his wife about twenty-five. This shows very clearly that the boys have taken chiefly of the father, and the daughters of the mother."

In a case which fell under my own observation, the father of a family became sick, had a partial recovery, but relapsed, declined in health, and in two months died. Seven months after his death, a son was born, of the full age, and the origin of whose existence was referable to the period of the partial recovery. At that time, and during the subsequent two months, the faculties of the mother were highly excited, in ministering to her husband, to whom she was greatly attached; and, after his death, the same excitement continued, as she was then loaded with the charge of a numerous family, but not depressed; for her circumstances were comfortable. The son is now a young man; and while his constitution is the most delicate, the developement and activity of the mental organs are decidedly greater in him than in any other member of the family.

A lady possessing a large brain and active temperament, was employed professionally as a teacher of music. Her husband also had a fine temperament, and a well-constituted brain, but his talents for music were only moderate. They had several children, all of whom were produced while the mother was in the full practice of her profession, and the whole now indicate superior musical abilities. They have learned to play on several instruments as if by instinct, and highly excel. In this case the original endowments of the mother, and her actual exercise of them, conspired to transmit them to her children.

A friend told me that in his youth he lived in a county in which the gentlemen were much addicted to hard drinking; and that he, too frequently, took a part in their revels. Several of his sons, born at that time, although subsequently educated in a very different moral atmosphere, turned out strongly addicted to inebriety; whereas the children born after he had removed to a large town and formed more correct habits, were not the victims of this propensity. Another individual, of superior talents, described to me the wild and mischievous revelry in which he indulged at the time of his marriage, and congratulated himself on his subsequent domestication and moral improvement. His eldest son, born in his riotous days, notwithstanding a strictly moral education, turned out a personification of the father's actual condition at that time; and his younger children were more moral in propor-

* Athenæum, 28th May 1825, p. 398.

† See Appendix, No. VI.

‡ Black hens, however, lay dark-coloured eggs.

* This lady's head is large; in particular, the organs of Combativeness, Self-Esteem, and Firmness, are very large; those of Destructiveness and Adhesiveness are large; and the temperament is very active.

tion as they were removed from the period of vicious frolics. The mother, in this case, possessed a favourable developement of brain.

The Margravine of Anspach observes, that "when a female is likely to become a mother, she ought to be doubly careful of her temper; and, in particular, to indulge no ideas that are not cheerful, and no sentiments that are not kind. Such is the connection between the mind and body, that the features of the face are moulded commonly into an expression of the internal disposition; and is it not natural to think that an infant, before it is born, may be affected by the temper of its mother?"—*Memoirs*, vol. ii. chap. viii.*

When two parties marry very young, the eldest of their children generally inherits a less favourable developement of the moral and intellectual organs, than those produced in more mature age. The animal organs in the human race are in general most vigorous in early life, and this energy appears to cause them to be then most readily transmitted to offspring. Indeed, it is difficult to account for the wide varieties in the form of the brain in children of the same family, except on the principle, that the organs which predominate in vigour and activity in the parents, at the time when existence is communicated, determine the tendency of corresponding organs to develope themselves largely in the children. The facts illustrative of the truth of this principle, which have been communicated to me and observed by myself, are so numerous, that I now regard it as extremely probable.

If this be really the law of nature—as there is so great reason for believing it is—then parents, in whom Combativeness and Destructiveness are habitually active, will transmit these organs, in a state of high developement and excitement, to their children; while parents in whom the moral and intellectual organs exist in supreme vigour, will transmit these in greatest perfection.

This view is in harmony with the fact, that children generally, although not universally, resemble their parents in their mental qualities; because, the largest organs being naturally the most active, the general and habitual state of the parents will be determined by those which predominate in size in their own brains; and, on the principle that predominance in activity and energy causes the transmission of similar qualities to the offspring, the children will in this way very generally resemble the parents. But they will not always do so; because even very inferior characters, in whom the moral and intellectual organs are deficient, may be occasionally exposed to external influences which, for the time, may excite these organs to unwonted vivacity; and, according to the rule now explained, a child dating its existence from that period may inherit a brain superior to that of the parent. On the other hand, a person with an excellent moral developement, may, by some particular occurrence, have his animal propensities roused to unwonted vigour, and his moral sentiments thrown for a time into the shade; and any offspring connected with this condition, would prove inferior to himself in the developement of the moral organs, and greatly surpass him in the size of those of the propensities.

I repeat, that I do not present these views as ascertained phrenological science, but as inferences strongly supported by facts, and consistent with known phenomena. If we suppose them to be true, they will greatly strengthen the motives for preserving the *habitual* supremacy of the moral sentiments and intellect; since by our doing so, improved moral and intellectual capacities may be conferred on offspring. If it be true that this lower world is arranged in harmony with the supremacy of the higher faculties, what a noble prospect would this law open up, of the possibility of man ultimately becoming capable of placing himself more fully in accordance with the Divine institutions than he has hitherto been able to do, and, in consequence, of reaping numberless enjoyments that appear destined for him by his Creator, and avoiding thousands of miseries that now render life too often only a series of calamities! The views here expounded also harmonise with the principle maintained in a former part of this work. That, as activity in the faculties is the fountain of enjoyment, the whole constitution of nature is designedly framed to support them in ceaseless action. What scope for observation, reflection, exercise of the moral sentiments, and the regulation of animal impulse, does not this picture of nature present!

I cordially agree, however, with Dr Prichard, that this subject is still involved in great obscurity. "We know not," says he, "by what means any of the facts we remark are effected; and the utmost we can hope to attain is, by tracing the connexion of circumstances, to learn from what combinations of them we may expect to witness particular results."—Vol. ii. p. 542. But much of this darkness may be traced to ignorance of the functions of the brain. If we consider that, in relation to mind, the brain has always been the most important organ of our system; that the mental condition of their parents must almost necessarily have exercised a powerful influence over the developement of the cerebral organs in their children; that the relative size of the organs determines the predominance of particular talents and dispositions; but that, nevertheless, all past observations have been conducted without the knowledge of these facts; it will not appear marvellous, that hitherto much confusion and contradiction have existed in the cases recorded, and in the inferences drawn from them on this subject. At the present moment, almost all that phrenologists can pretend to accomplish is, to point out the mighty void; to offer an exposition of its causes, and to state such conclusions as their own very limited observations have hitherto enabled them to deduce. Far from pretending to be in possession of certain and complete knowledge on this topic, I am inclined to think, that, although every conjecture now hazarded were founded in nature, centuries of observation might probably be necessary to render the principles fully practical. At present we have almost no information concerning the effects, on the children, of different temperaments, different combinations in the cerebral organs, and differences of age, in the parents.

It is astonishing, however, to what extent mere pecuniary interests excite men to investigate and observe the Natural Laws, while moral and rational considerations appear to exert so small an influence in leading them to do so. Before a common insurance company will undertake the risk of paying L.100 on the death of an individual, they require the following questions to be answered by credible and intelligent witnesses:—

"1. How long have you known Mr A. B.?

"2. Has he had the gout?

"3. Has he had a spitting of blood, asthma, consumption, or other pulmonary complaint?

"4. Do you consider him at all predisposed to any of these complaints?

"5. Has he been afflicted with fits, or mental derangement?

"6. Do you think his constitution perfectly good, in the common acceptation of the term?

"7. Are his habits in every respect strictly regular and temperate?

"8. Is he at present in good health?

"9. Is there any thing in his form, habits of living, or business, which you are of opinion may shorten his life?

"10. What complaints are his family most subject to?

"11. Are you aware of any reason why an insurance might not with safety be effected on his life?"

A man and woman about to marry, have, in the generality of cases, the health and happiness of five or more human beings depending on their attention to considerations essentially the same as the foregoing, and yet how much less scrupulous are they than the mere speculators in money! "Before the par-

* See Appendix, No VII.

ties," says Dr Caldwell, "form a compact fraught with consequences so infinitely weighty, let the constitution and education of both be matured. They will then not only transmit to their offspring a better organisation, but be themselves, from the knowledge and experience they have attained, better prepared to improve it by cultivation. For I shall endeavour to make it appear that cultivation can improve it. When a skilful agriculturist wishes to amend his breed of cattle, he does not employ, for that purpose, immature animals. On the contrary, he carefully prevents their intercourse. Experience moreover teaches him not to expect fruit of the best quality from immature fruit-trees or vines. The product of such crudeness is always defective. In like manner, marriages between boarding-school girls and striplings in or just out of college, ought to be prohibited. In such cases, prohibition is a duty, no less to the parties themselves, than to their offspring and society. Marriages of the kind are rarely productive of any thing desirable. Mischief and unhappiness of some sort are their natural fruit. Patriotism, therefore, philanthropy, and every feeling of kindness to human nature, call for their prevention. Objections resting on ground not altogether dissimilar may be justly urged against young women marrying men far advanced in years. Old men should in no case contract marriages likely to prove fruitful. Age has impaired their constitutional qualities, which descending to their offspring, the practice tends to deteriorate our race. It is rare for the descendants of men far advanced in years to be distinguished for high qualities of either body or mind.

"As respects persons seriously deformed, or in any way constitutionally enfeebled—the rickety and club-footed, for instance, and those with distorted spines, or who are predisposed to insanity, scrofula, pulmonary consumption, gout, or epilepsy—all persons of this description should conscientiously abstain from matrimony. In a special manner, where both the male and female labour under a hereditary taint, they should make it a part of their duty to God and their posterity never to be thus united. Marriage in such individuals cannot be defended on moral ground, much less on that of public usefulness. It is selfish to an extent but little short of crime. Its abandonment or prevention would tend, in a high degree, to the improvement of mankind."*

I am indebted for the following particulars to the medical gentleman already repeatedly quoted, who was induced to communicate them by a perusal of the second edition of the present treatise:—"If your work has no other effect than that of turning attention to the laws which regulate marriage and propagation, it will have done a vast service, for on no point are such grievous errors committed. I often see in my own practice the most lamentable consequences resulting from neglect of these laws. There are certain families which I attend, where the constitutions of both parents are bad, and where, when any thing happens to the children, it is almost impossible to cure them. An inflamed gland, a common cold, hangs about them for months, and almost defies removal. In other families, where the parents are strong and healthy, the children are easily cured of almost any complaint. I know a gentleman aged about 50, the only survivor of a family of six sons and three daughters, all of whom, with the exception of himself, died young of pulmonary consumption. He is a little man with a narrow chest, and married a lady of a delicate constitution and bad lungs. She is a tall spare woman, with a chest still more deficient than his own. They have had a large family, all of whom die off regularly as they reach manhood and womanhood, in consequence of affections of the lungs. In the year 1833, two sons and a daughter died within a period of ten months. Two still survive, but they are both delicate, and there can be no doubt that when they arrive at maturity they will follow the rest. This is a most striking instance of punishment under the organic laws."

It is pleasing to observe, that, in Wurtemberg, there are two excellent laws calculated to improve the moral and physical condition of the people, which other states would do well to adopt. First, "It is illegal for any young man to marry before he is twenty-five, or any young woman before she is eighteen; and a young man, at whatever age he wishes to marry, must show to the police and the priest of the commune where he resides, that he is able, and has the prospect, to provide for a wife and family." The second law compels parents to send their children to school, from the age of six to fourteen.*

There is no moral difficulty in admitting and admiring the wisdom and benevolence of the institution by which *good* qualities are transmitted from parents to children: but it is frequently held as unjust to the latter, that they should inherit parental *deficiencies*, and so be made to suffer for sins which they did not commit. In treating of this difficulty, I must again refer to the supremacy of the moral sentiments, as the theory of the constitution of the world. The animal propensities are all selfish, and regard only the immediate and apparent interest of the individual; while the higher sentiments delight in that which communicates the greatest quantity of enjoyment to the greatest number. Now, let us, in the *first* place, suppose the law of hereditary descent to be abrogated altogether—that is to say, the natural qualities of each individual of the race to be conferred at birth, without the slightest reference to what his parents had been or done;—this form of constitution would obviously have cut off every possibility of improvement *in the race*, by any means within the control of man. Every phrenologist knows that the brains of the New Hollanders, Caribs, and other savage tribes, are distinguished by great deficiencies in the moral and intellectual organs.†

CARIB.

If, however, it be true that a considerable developement of the intellectual and moral organs is indispensable to the comprehension of science and the practice of virtue, it would, on the present supposition, be impossible to raise the New Hollanders, as a people, one step higher in capacity for intelligence and virtue than they now are. We might cultivate each generation up to the limits of its powers, but there the improvement, and a low one it would be, would stop; for, the next generation being produced with brains equally deficient in the moral and intellectual regions, no principle of increasing amelioration could exist. The same remarks are applicable to every tribe of mankind. If we assume modern Europeans as a standard—then, if the law of hereditary descent were abrogated, every deficiency which at this moment is attributable to imperfect or disproportionate developement of brain, would be irremediable by human means, and continue as long as the race existed. Each generation might be cultivated till the summit-level of its capacities were attained, but higher than this no succeeding generation could rise. When we contrast with such a prospect the very opposite effects flowing from the law of hereditary transmission of qualities in

* Thoughts on the True Mode of Improving the Condition of Man. By Charles Caldwell, M.D. Lexington, Kentucky, 1833, p. 20. The greater part of this eloquent and powerful Essay is reprinted in the Phrenological Journal, vol. viii. No. 40.

* See Appendix, No. VIII.

† This fact is demonstrated by specimens in most Phrenological Collections.

an increasing ratio, the whole advantages are at once perceived to be on the side of the latter arrangement. According to this rule, the children of the individuals who have obeyed the organic, the moral, and the intellectual laws, will not only start from the highest level of their parents in acquired knowledge, but will inherit an enlarged developement of the moral and intellectual organs, and thereby enjoy an increasing capability of discovering and obeying the institutions of the Creator.

It appears to me that the native American savages, and native New Hollanders, cannot, with their present brains, adopt Christianity or civilisation. Mr Timothy Flint, a Presbyterian clergyman, who passed ten years, commencing in 1815, in wanderings and preaching in the valley of the Mississippi, says of the Indians among whom he lived, "that they have not the same acute and tender sensibilities with the other races of men. They seem callous to every passion but rage." . . . . "Their impassible fortitude and endurance of suffering, which have been so much vaunted, are, after all, in my mind, the result of a greater degree of physical insensibility." "No ordinary stimulus excites them to action. None of the common excitements, endearments, or motives, operate upon them at all. They seem to hold most of the things that move us in proud disdain. The horrors of their warfare—the infernal rage of their battles—the demoniac fury of gratified revenge—the alternations of hope and despair in their gambling, to which they are addicted far beyond the whites—the brutal exhilaration of drunkenness—these are their excitements." He concludes, "It strikes me that Christianity is the religion of civilised man; that the savages must first be civilised; and that, as there is little hope that the present generation of Indians can be civilised, there is but little more that they will be christianised."

The reader will find, in the phrenological collections, specimens of the skulls of these savages; and on comparing them with those of Europeans, he will observe that, in the American Indians, the organs of reflecting intellect, and of all the moral feelings, are greatly inferior in size to the same organs in the Europeans. The moral and intellectual organs are decidedly larger in the Sandwich Islanders than in these Indians, and they have received European civilisation with greater cordiality and success. If, by conforming to the organic laws, the moral and intellectual organs of the American savages could be considerably enlarged, they would *desire* civilisation, and would adopt it when offered. If this view be well founded, every method used for their cultivation, which is not calculated at the same time to improve their cerebral organisation, will be limited in its effects by the narrow capacities attending their present developement. In youth, all the organs of the body are more susceptible of modification than in advanced age; and hence the effects of education on the young may arise from the greater susceptibility of the brain to changes at that period than in later life. This improvement will, no doubt, have its limits; but it may probably extend to that point at which man will be capable of placing himself in harmony with the natural laws. The effort necessary to *maintain* himself there, will still provide for the activity of his faculties.

2*dly*, We may suppose the law of hereditary descent to be limited to the transmission of good, and abrogated as to the transmission of bad qualities; and it may be thought that such an arrangement would be more benevolent and just. There are objections to this view, however, which do not occur without reflection to the mind. We see as matter of fact, that a vicious and debased parent is actually defective in the moral and intellectual organs. Now, if his children should take up exactly the same developement as himself, this would be the transmission of imperfections, which is the very thing objected to; while, if they were to take up a developement fixed by nature, and not at all referable to that of the parent, this would render the whole race stationary in their first condition, without the possibility of improvement in their capacities—which also, we have seen, would be an evil greatly to be deprecated. But,

3*dly*, The bad developement might be supposed to transmit, by hereditary descent, a good developement. This, however, would set at nought the supremacy of justice and benevolence; it would render the consequences of contempt for and violation of the divine laws, and of obedience to them, in this particular, precisely alike. The debauchee, the cheat, the murderer, and the robber, would, according to this view, be able to look upon the prospects of his posterity with the same confidence in their welfare and happiness, as the pious intelligent Christian, who had sought to know God and to obey his institutions during his whole life. Certainly no individual in whom the higher sentiments prevail, will for a moment regard this imagined change as any improvement on the Creator's arrangements. What a host of motives to moral and religious conduct would at once be withdrawn, were such a spectacle of divine government exhibited to the world!

4*thly*, It may be supposed that human happiness would have been more completely secured, by endowing all individuals at birth with that degree of developement of the moral and intellectual organs which would have best fitted them for discovering and obeying the Creator's laws, and by preventing all aberrations from this standard: just as the lower animals appear to have received instincts and capacities adjusted with the most perfect wisdom to their conditions. Two remarks occur on this supposition. *First*, We are not competent at present to judge correctly how far the developement actually bestowed on the human race is, or is not, wisely adapted to their circumstances; for possibly there may be, in the great system of human society, departments exactly suited to all existing forms of brain not imperfect through disease, but which our knowledge is insufficient to discover. The want of a natural index to the mental dispositions and capacities of individuals, and of a true theory of the constitution of society, may have hitherto precluded philosophers from arriving at sound conclusions on this question. It appears to me probable, that while there may be great room for improvement in the talents and dispositions of vast numbers of individuals, the imperfections of the race in general may not be so great as we, in our present state of ignorance of the aptitudes of particular persons for particular situations, are prone to infer. But, *secondly*, On the principle that activity of the faculties is the fountain of enjoyment, it may be questioned whether additional motives to the exercise of the moral and intellectual powers, and consequently greater happiness, are not conferred by leaving men (within certain limits) to regulate the talents and tendencies of their descendants, than by endowing each individual with the best qualities, independently of the conduct of his parents.

On the whole, therefore, there seems reason for concluding, that the actual institution, by which both good and bad qualities* are transmitted, is fraught with higher advantages to the race, than the abrogation of the law of transmission altogether, or than the supposed change of it, by which bad men would transmit good qualities to their children. The actual law, when viewed by the moral sentiments and intellect, appears, both in its principles and in its consequences, beneficial and expedient. When an individual sufferer, therefore, complains of its operation, he regards it through the animal faculties alone; his self-love is annoyed, and he carries his thoughts no farther. He never stretches his mind forward to the consequences which would ensue to mankind at large, if the law

* In using the popular expressions "good qualities" and "bad qualities," I do not mean to insinuate that any of the tendencies bestowed on man are essentially bad in themselves. Destructiveness and Acquisitiveness, for example, are in themselves essential to human welfare in this world, and, when properly directed, produce effects unquestionably good; but they become the sources of evil when they are ill directed, which may happen either from moral deficiency, from intellectual ignorance, or from their organs being too large in proportion to those of the superior sentiments and intellect.

which grieves him were reversed. The animal faculties regard nothing beyond their own immediate and apparent interest, and they do not even discern *it* correctly; for no arrangement that is beneficial for the race would be found injurious to individuals, if its operations in regard to them were distinctly traced. The abrogation of the rule, therefore, under which they complain, would, we may be certain, bring ten thousand times greater evils, even upon themselves, than its continuance.

On the other hand, an individual sufferer under hereditary pain, in whom the moral and intellectual faculties predominate, and who should see the principle and consequences of the institution of hereditary descent as now explained, would not murmur at them as unjust: he would bow with submission to an institution which he perceived to be fraught with blessings to the race when it was known and observed; and the very practice of this reverential acquiescence would be so delightful, that it would diminish, in a great degree, the severity of his misfortune. Besides, he would see the door of mercy standing widely open, and inviting his return; he would perceive that every step which he made in his own person towards exact obedience to the Creator's laws, would remove by so much the organic penalty transmitted on account of his parent's transgressions, and that his posterity would reap the full benefits of his more dutiful observance.

It may be objected to the law of hereditary transmission of organic qualities, that the children of a blind and lame father have sound eyes and limbs. But, in the *first* place, these defects are generally the result of accident or disease, occurring either during pregnancy or posterior to birth, and are seldom or never the operation of nature; and, consequently, the original physical principles remaining entire in the constitution, the bodily imperfections are not transmitted to the progeny. *Secondly*, Where the defects are congenital or constitutional, it frequently happens that they are transmitted through successive generations. This is sometimes exemplified in blindness, and even in the possession of supernumerary fingers or toes. The reason why such peculiarities are not transmitted to all the progeny, appears to be simply that, in general, only one parent is defective. If the father, for instance, be blind or deaf, the mother is generally free from that imperfection, and her influence naturally extends to, and modifies the result in, the progeny.

If the mental qualities transmitted to offspring be, as above explained, dependent on the organs most highly excited in the parents, this will account for the varieties, along with the general resemblance, that occur in children of the same marriage. It will account also for the circumstance of genius being sometimes transmitted and sometimes not. Unless *both* parents possessed the cerebral developement and temperament of genius, the law would not certainly transmit these qualities to the children; and even although both did possess these endowments, they would be transmitted only on condition of the parents obeying the organic laws—one of which forbids that excessive exertion of the mental and corporeal functions which exhausts and debilitates the system; an error almost universally committed by persons endowed with high original talent, under the present condition of ignorance of the natural laws, and erroneous fashions and institutions of society. The supposed law would be disproved by cases of weak, imbecile, and vicious children, being born to parents whose own constitution and habits had been in the highest accordance with the organic, moral, and intellectual laws; but no such cases have hitherto come under my observation.

As rules are best taught by examples, I shall now mention some facts that have fallen under my own notice, or been communicated to me from authentic sources, illustrative of the practical consequences of infringing the law of hereditary descent.

A man, aged about 50, possessed a brain in which the animal, moral, and knowing intellectual organs, were all large, but the reflecting small. He was pious, but destitute of education; he married an unhealthy young woman, deficient in moral developement, but of considerable force of character; and several children were born. The father and mother were far from being happy; and when the children attained to eighteen or twenty years of age, they were adepts in every species of immorality and profligacy: they picked their father's pocket, stole his goods, and got them sold back to him, by accomplices, for money, which was spent in betting, cock-fighting, drinking, and low debauchery. The father was heavily grieved; but knowing only two resources, he beat the children severely as long as he was able, and prayed for them: his own words were, that "if, *after that*, it pleased the Lord to make vessels of wrath of them, the Lord's will must just be done." I mention this last observation, not in jest, but in great seriousness. It was impossible not to pity the unhappy father: yet, who that sees the institutions of the Creator to be in themselves wise, but in this instance to have been directly violated, will not acknowledge that the bitter pangs of the poor old man were the consequences of his own ignorance; and that it was an erroneous view of the divine administration which led him to overlook his own mistakes, and to attribute to the Almighty the purpose of making vessels of wrath of his children, as the only explanation which he could give of their wicked dispositions? Who that sees the cause of his misery can fail to lament that his piety was not enlightened by philosophy, and directed to obedience, in the first instance, to the organic laws of the Creator, as one of the prescribed conditions without observance of which he had no title to expect a blessing upon his offspring?

In another instance, a man, in whom the animal organs, particularly those of Combativeness and Destructiveness, were very large, but who had a pretty fair moral and intellectual developement, married, against her inclination, a young woman, fashionably and showily educated, but with a very decided deficiency of Conscientiousness. They soon became unhappy, and even blows were said to have passed between them, although they belonged to the middle rank of life. The mother employed the children to deceive and plunder the father, and latterly spent the pilfered sums in purchasing ardent spirits. The sons inherited the deficient morality of the mother, and the ill temper of the father. The family fireside became a theatre of war, and, before the sons attained majority, the father was glad to get them removed from his house, as the only means by which he could feel even his life in safety from their violence; for they had by that time retaliated the blows with which he had visited them in their younger years, and he stated that he actually considered his life to be in danger from his own offspring.

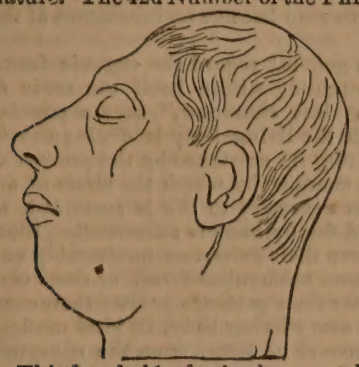
In another family, the mother possesses an excellent developement of the moral and intellectual organs, while in the father the animal organs predominate in great excess. She has been the unhappy victim of ceaseless misfortune, originating from the misconduct of her husband. Some of the children have inherited the father's brain, and some the mother's; and of the sons whose heads resembled that of the father, several have died through mere debauchery and profligacy under thirty years of age; whereas those who resemble the mother are alive, and little contaminated even amidst all the disadvantages of evil example.

On the other hand, I am not acquainted with a single instance in which the moral and intellectual organs predominated in both father and mother, and where external circumstances permitted their general activity, in which the whole children did not partake of a moral and intellectual character, differing slightly in degrees of excellence one from another, but all presenting the decided predominance of the human over the animal faculties.

There are well-known examples of the children of

religious and moral fathers exhibiting dispositions of a very inferior description; but in all the instances of this sort that I have been able to observe, there has been in one parent a large developement of the animal organs, which was controlled, but not much more, by the moral and intellectual powers; while, in the other parent, the moral organs did not appear to be in large proportion. The unfortunate child inherited the large animal developement of the one, with the defective moral developement of the other; and, in this way, was inferior to both. The way to satisfy one's self on this point, is to examine the heads of the parents. In all such cases, a large base of the brain, which is the region of the animal propensities, will very probably be found in one or other of them.

Another organic law of the animal kingdom deserves attention, viz. that by which marriages between blood relations tend decidedly to the deterioration of the physical and mental qualities of the offspring. In Spain, kings marry their nieces, and in this country first and second cousins marry without scruple; although every philosophical physiologist will declare that this is in direct opposition to the institutions of nature. The 42d Number of the Phrenological Journal contains an account of an idiot in Manchester, whose parents are cousins, and one of whose sisters is also idiotic. His head is extremely small, particularly in the upper part of the forehead. A representation of it is annexed.



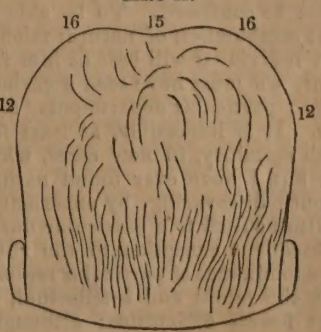
This law holds also in the vegetable kingdom. "A provision of a very simple kind, is, in some cases, made to prevent the male and female blossoms of the same plant from breeding together, this being found to hurt the breed of vegetables, just as breeding in and in does the breed of animals. It is contrived that the dust shall be shed by the male blossom before the female is ready to be affected by it, so that the impregnation must be performed by the dust of some other plant, and in this way the breed be crossed."—*Objects, &c. of Science*, p. 33. On a similar principle, it is found highly advantageous in agriculture not to sow grain of the same stock in constant succession on the same soil.

In individual instances, if the soil and plants are both possessed of great vigour and the highest qualities, the same kind of grain may be reaped in succession twice or thrice, with less perceptible deterioration than where these elements of reproduction are feeble and imperfect; and the same fact occurs in the animal kingdom. If the first individuals connected in near relationship, who unite in marriage, are uncommonly robust, and possess very favourably developed brains, their offspring may not be *so much* deteriorated below the common standard of the country as to attract particular attention, and the law of nature is, in this instance, supposed not to hold; but it does hold, for to a law of nature there never is an exception. The offspring are uniformly inferior to what they *would have been*, if the parents had united with strangers in blood of *equal vigour and cerebral developement*. Whenever there is any remarkable deficiency in parents who are related in blood, these appear in the most marked and aggravated forms in the offspring. This fact is so well known, and so easily ascertained, that I forbear to enlarge upon it.—So much for miseries arising from neglect of the organic laws in forming the *domestic compact*.

I proceed to advert to those evils which arise from overlooking the operation of the same laws in the ordinary relations of society.

How many little annoyances arise from the misconduct of servants and dependents in various departments of life! how many losses, and sometimes ruin, arise from dishonesty and knavery in confidential clerks, partners, and agents! A mercantile house of great reputation, in London, was ruined and became bankrupt, by a clerk having embezzled a prodigious extent of funds, and absconded to America; another company in Edinburgh sustained a great loss by a similar piece of dishonesty; a company in Paisley was ruined by one of the partners having collected the funds, and eloped with them to the United States; and several bankers, and other persons, suffered severely in Edinburgh, by the conduct of an individual some time connected with the public press. It is said that depredations are constantly committed in the post-offices of the United Kingdom, in spite of every effort made to select persons of the best character, and of the strictest vigilance exercised over their conduct. If it be true that the talents and dispositions of individuals are indicated and influenced by the developement of their brains, and that their actual conduct is the result of this developement and of their external circumstances, including in the latter every moral and intellectual influence coming from without, it is obvious that one and all of the evils here enumerated might, to a great extent, be obviated by the application of Phrenology. These misfortunes can be traced to the error of having placed human beings, decidedly deficient in moral or intellectual qualities, in situations which demand these in a higher degree than they possessed them; and any certain means by which the presence or absence of these qualities could be predicated before their appointment, would go far to prevent the occurrence of the evils. The two following figures, for example, represent several of the organs most important in practical conduct in opposite states of developement, and the dispositions of the individuals exactly corresponded with them.

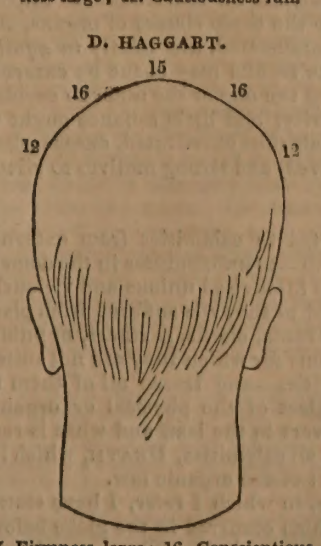
MRS H.



15. Firmness small; 16. Conscientiousness large; 12. Cautiousness full.

Mrs H. was a lady remarkable for Conscientiousness, but unsteady of purpose. It was necessary for her to have a friend, whose advice she constantly asked and followed, in order to preserve herself from yielding to every internal impulse or outward solicitation.

D. HAGGART.



15. Firmness large; 16. Conscientiousness deficient; 12. Cautiousness rather large.

David Haggart was a dexterous and enterprising thief and pickpocket, who was executed at last for murdering the jailor of Dumfries, with a view to escape from justice.

If individuals having brains resembling that of Haggart, who was remarkable for dishonesty, should be placed in situations of trust, in which there should be presented to them temptations to deception and embezzlement, which could be resisted only by strong sentiments of justice, their misconduct, sooner or later, would be almost certain, owing to the great size of their animal

organs, and the deficiency of their organs of Conscientiousness. I have seen so many instances of dishonest practices in concomitance with similar combinations, that I cannot doubt of their connection. Where external circumstances remove from persons thus constituted all temptation to pilfering, their deficient perceptions of justice will still be discernible in the laxness of their notions of morality, in their treatment of inferiors, and in their general conduct.

Again, if a person were wanted for any situation in which great decision of character, steadiness, and perseverance, were necessary, and we selected a candidate whose brain, at the organ of Firmness, resembled that of Mrs H., we should assuredly be disappointed. This lady, as already mentioned, was remarkable for vacillation of purpose; and I have never seen a single instance of decision of character combined with such a defect of brain as is here represented. These cases are introduced merely as examples and illustrations. The reader who wishes to pursue the subject farther, is referred to the common treatises on Phrenology and the Phrenological Journal for additional information.

If any man were to go to sea in a boat of pasteboard, which the very fluidity of the element would dissolve, no one would be surprised at his being drowned; and, in like manner, if the Creator has constituted the brain so as to exert a great influence over the mental dispositions, and if, nevertheless, men are pleased to treat this fact with neglect and contempt, and to place individuals, naturally deficient in the moral organs, in situations where great morality is required, they have no cause to be surprised if they suffer the penalties of their own misconduct, in being plundered and defrauded.

Although I can state, from experience, that it is possible, by the aid of Phrenology, to select individuals whose moral qualities may be relied on, yet the extremely limited extent of our practical knowledge in regard to the intellectual talents that fit persons for particular duties, must be confessed. To be able to judge accurately what combination of natural talents and dispositions in an individual will best fit him for any given employment, we must have seen a variety of combinations tried in particular departments, and observed their effects. It is impossible, at least for me, to anticipate with certainty, in new cases, what these effects will be; but I have ever found nature constant; and after once discovering, by experience, an assortment of qualities suited to a particular duty, I have found no subsequent exception to the rule. Cases in which the predominance of particular regions of the brain, such as the moral and intellectual, is very decided, present fewest difficulties; although, even in them, the very deficiency of animal organs may sometimes incapacitate an individual for important stations. Where the three classes of organs, the animal, moral, and intellectual, are nearly *in æquilibrio*, the most opposite results may ensue by external circumstances exciting the one or the other to decided predominance in activity, and little reliance ought to be placed on individuals thus constituted, except when temptations are removed, and strong motives to virtue presented.

Having now adverted to calamities from external violence—to bad health—to unhappiness in the domestic circle, arising from ill-advised unions and viciously disposed children—and to the evils suffered from placing individuals, as servants, clerks, partners, or public instructors, in situations for which they are not suited by their natural qualities—and traced all of them to infringements or neglect of the physical or organic laws, I proceed to advert to the last, and what is reckoned the greatest, of all calamities, DEATH, which itself is obviously a part of the organic law.

In the introduction, to which I refer, I have stated briefly the changes which occurred in the globe before man was introduced to inhabit it. The researches of geologists have shown that the world we inhabit was at first in a fluid condition; that crystalline rocks were deposited before animal or vegetable life began; that then came the lowest orders of zoophytes and of vegetables; next fishes and reptiles—and trees in vast forests, giving origin to our present beds of coal; then quadrupeds and birds, and shells and plants, *resembling* those of the present era, but all of which, as species, have utterly perished from the earth: that next came alluvial rocks, containing bones of mammoths and other gigantic animals; and that last of all came man. Dr Buckland has shown that certain long, rounded, stony bodies, like oblong pebbles or kidney potatoes, scattered on the shore at Lyme Regis, and frequently lying beside the bones of the saurian or lizard-like reptiles there discovered, are the dung of these animals in a fossil state. Many specimens of them contain scales, teeth, and bones of fishes, that seem to have passed undigested through the body of the animal; just as the enamel of the teeth and fragments of bone are found undigested in the dung of the ravenous hyena. Similar fossils (scientifically named coprolites) are found on the shore of the Firth of Forth, about a mile westward from Newhaven. These facts show that death, or destruction of vegetable and animal life, was an institution of nature before man became an inhabitant of the globe.

Physiologists in general regard the organic frame of man also as containing within itself the seeds of dissolution. "The last character," says a popular author, "by which the living body is distinguished, is that of terminating its existence by the process of death. The vital energies by which the circle of actions and reactions necessary to life is sustained, at length decline, and finally become exhausted. Inorganic bodies preserve their existence unalterably and for ever, unless some mechanical force, or some chemical agent, separate their particles or alter their composition. But, in every living body, its vital motions inevitably cease, sooner or later, from the operation of causes that are internal and inherent. Thus, to terminate its existence by death, is as distinctive of a living being as to derive its origin from a pre-existing germ."*

It is beyond the compass of philosophy to explain *why* the world was constituted in the manner here represented. I therefore make no inquiry why death was instituted, and refer, of course, only to the dissolution of organised bodies, and not at all to the state of the soul or mind after its separation from the body. This belongs to Revelation.

Let us first view the dissolution of the body abstractedly from personal considerations, as a mere natural arrangement. Death, then, appears to be a result of the constitution of all organised beings; for the very definition of the genus is, that the individuals grow, attain maturity, decay, and die. The human imagination cannot conceive how the former part of this series of movements could exist without the latter, as long as space is necessary to corporeal existence. If all the vegetable and animal productions of nature, from creation downwards, had grown, attained maturity, and there remained, the world would not have been capable of containing the thousandth part of them; so that, on this earth, decaying and dying appear indispensably necessary to admit of reproduction and growth. Viewed abstractedly, then, organised beings live as long as health and vigour continue; but they are subjected to a process of decay, which impairs gradually all their functions, and at last terminates in their dissolution. Now, in the vegetable world, the effect of this law is, to surround us with young trees, in place of everlasting stately full-grown forests, standing forth in awful majesty, without variation in leaf or bough; —with the vernal bloom of spring, changing gracefully into the vigour of summer and the maturity of autumn;—with the rose, first simply and delicately budding, then luxuriant and lovely in its perfect evolution. In short, when we advert to the law of death, as instituted in the vegetable kingdom, and as related

* Animal Physiology, p. 7; Library of Useful Knowledge.

to our own faculties of Ideality and Wonder, which desire and delight in the very changes which death introduces, we without hesitation exclaim, that all is wisely and wonderfully made. Turning again to the animal kingdom, we discover that the same fundamental principle prevails. Death removes the old and decayed, and the organic law introduces in their place the young, the gay, and the vigorous, to tread the stage with renewed agility and delight.

This transfer of existence may readily be granted to be beneficial to the young; but at first sight it appears the opposite of benevolent to the old. To have lived at all, is felt as giving a right to continue to live; and the question arises, How can the institution of death, as the result of the organic law, be reconciled with benevolence and justice?

I am aware that, theologically, death is regarded as the punishment of sin, and that the attempt to reconcile our minds to it by reason is objected to as at once futile and dangerous. But I beg leave to observe, that philosophers have established, by irrefragable evidence, that before man was created, death prevailed among the lower animals, not only by natural decay and the operation of physical forces, but by the express institution of carnivorous creatures destined to prey on living beings; that man himself is carnivorous, and obviously framed by the Creator for a scene of death; that his organic constitution, in its inherent qualities, implies death as its final termination; and that if these facts be admitted to be undeniable on the one hand, and we are prohibited, on the other, from attempting to discover, from the records of creation itself, the wise adaptation of the human feelings and intellect to this state of things, neither the cause of revelation nor that of reason can be thereby benefited. The foregoing facts cannot be disputed or concealed; and the only effect of excluding the investigation on which I propose to enter, would be to close the path of reason, and to leave the constitution of the external world and of the human mind apparently in a state of contradiction to each other. Let us rather trust to the inherent consistency of all truths, and rely on all sound conclusions of reason being in accordance with every correct interpretation of Scripture.

In treating of the supremacy of the moral sentiments, I pointed out, that the grand distinction between those sentiments and the propensities consists in this—that the former are in their nature disinterested, generous, and fond of the general good, while the latter aim only at the welfare or gratification of the individual. It is obvious that death, as an institution of the Creator, must affect these two classes of faculties in the most different manner. A being endowed only with propensities and intellect, and enabled, by the latter, to discover death and its consequences, would probably regard it as an appalling visitation. It would see in it only the utter extinction of enjoyment to itself; for although it perceived existence transferred to other beings, who would enjoy life after its removal from the scene, this would afford it no consolation, in consequence of its wanting all the faculties which derive pleasure from disinterestedly contemplating the enjoyments of other creatures. The lower animals, then, whose whole being is composed of the inferior propensities and several *knowing* faculties, would probably see death, if they could at all anticipate it, in this light. It would appear to them as the extinguisher of every pleasure which they had ever felt; and apparently the bare prospect of it would render their lives so wretched, that nothing could alleviate the depressing gloom with which the habitual consciousness of it would inspire them. But, by depriving them of *reflective* faculties, the Creator has kindly and effectually withdrawn from them this evil. He has thereby rendered them completely blind to its existence. There is not the least reason to believe that any one of the lower animals, while in health and vigour, has the slightest conception that it is a mortal creature, any more than a tree has that it will die. In consequence, it lives in as full enjoyment of the present, as if it were assured of every agreeable sensation being eternal. Death always takes the individual by surprise, whether it comes in the form of violence suppressing life in youth, or of slow decay by age; and really operates as a transference of existence from one being to another, without consciousness of the loss in the one which dies. Let us, however, trace the operation of death, in regard to the lower animals, a little more in detail.

Philosophy, as already remarked, cannot explain why death was instituted at first; but, according to the views maintained in this work, we should expect to find it connected with, and regulated by, benevolence and justice—that is to say, that it should not be inflicted for the sole purpose of extinguishing the life of individuals, to their damage, without any other result; but that the general system under which it takes place should be, on the whole, favourable to the enjoyment not only of the race, but of each individual animal while life is given. And this accordingly is the fact. Violent death, and the devouring of one animal by another, are not purely benevolent; because pure benevolence would never inflict pain: but they are instances of destruction leading to beneficial results; that is, wherever death is introduced under the institutions of nature, it is accompanied with enjoyment or beneficial consequences to the very animals which are to become the subjects of it. While the world is calculated to support only a limited number of living creatures, the lower animals have received from nature powers of reproduction far beyond what are necessary to supply the waste of natural decay, and they do not possess intellect sufficient to restrain their numbers within the limits of their means of subsistence. Herbivorous animals, in particular, are exceedingly prolific, and yet the supply of vegetable food is limited. Hence, after multiplication for a few years, extensive starvation, the most painful and lingering of all deaths, and the most detrimental to the race, would inevitably ensue: but carnivorous animals have been instituted who kill and eat them; and, by this means, not only do carnivorous animals reap the pleasures of life, but the numbers of the herbivorous are restrained within such limits that the individuals among them enjoy existence while they live.* The destroyers, again, are limited in their turn: the moment they become too numerous, and carry their devastations too far, their food fails them, and they die of starvation, or, in their conflicts for the supplies that remain, destroy one another. Nature seems averse from inflicting death extensively by starvation, probably because it impairs the constitution long before it extinguishes life, and has the tendency to produce degeneracy in the race. It may be remarked also, speculatively, that herbivorous animals must have existed in considerable numbers before the carnivorous began to exercise their functions; for many of the former must die, that one of the latter may live. If a single sheep and a single tiger had been placed together at first, the tiger would have eaten up the sheep at a few meals, and afterwards died itself of starvation.

There is reason to believe, that, in the state of nature, death is attended with very little suffering to the lower creatures. In natural decay, the organs are worn out by mere age, and the animal sinks into gradual insensibility, unconscious that dissolution awaits it. Farther, the wolf, the tiger, the lion, and other beasts of prey instituted by the Creator as instruments of violent death, are provided, in addition to Destructiveness, with large organs of Cautious-

* St Pierre states this argument forcibly.—"By their production without restraint," says he, "creatures would be multiplied beyond all limits, till even the globe itself could not contain them. The preservation of every individual produced, would lead to ultimate destruction of the species. Some will answer, that the animals might live always, if they observed a proportion suitable to the territory which they inhabited. But, according to this supposition, they must at last cease to multiply; and then adieu to the loves and alliances, the building of nests, and all the harmonies which reign in their nature."—*Etude de la Nature*, Paris, 1791, p. 17.

ness and Secretiveness, which prompt them to steal upon their victims with the unexpected suddenness of a mandate of annihilation; and they are also impelled to inflict death in the most instantaneous and least painful method. The tiger and lion spring from their covers with the rapidity of the thunderbolt, and one blow of their tremendous paws, inflicted at the junction of the head with the neck, produces instantaneous death. The eagle is taught to strike its sharp beak into the spine of the birds which it devours, and their agony endures scarcely for an instant. It has been objected that the cat plays with the unhappy mouse, and prolongs its tortures: but the cat that does so, is the pampered and well-fed inhabitant of a kitchen; the cat of nature is too eager to devour, to indulge in such luxurious gratifications of Destructiveness and Secretiveness. It kills in a moment, and eats. Here, then, is actually a regularly organised process for withdrawing individuals among the lower animals from existence, almost by a fiat of destruction, and thereby providing for the comfortable subsistence of the creatures themselves while they live, and making way for a succession of new occupants. "Nature," says St Pierre, "does nothing in vain: she intends few animals to die of old age; and I believe that she has permitted to none except man to run the entire course of life, because in his case alone can old age be useful to the race. What would be the advantage of old animals, incapable of reflection, to a posterity born with instincts holding the place of experience; and how, on the other hand, would decrepid parents find support among offspring which instinctively leave them whenever they are able to swim, to fly, or to run? Old age would prove to such creatures a burden; of which beasts of prey mercifully deliver them."

Man, in his mode of putting the lower creatures to death, is not so tender as beasts of prey: but he might be so. Suppose the sheep to be guillotined, and not maltreated before its execution, the creature would never know that it had ceased to live. And, by the law which I have already explained, man does not with impunity add one unnecessary pang to the death of the inferior animals. In the butcher who inflicts torments on calves, sheep, and cattle, while driving them to the slaughter—and who kills them in the way supposed to be most conducive to the gratification of his Acquisitiveness, such as bleeding them to death, by successive stages, prolonged for days to whiten their flesh—the animal faculties of Destructiveness, Acquisitiveness, and Self-Esteem, predominate so decidedly in activity over the moral powers, that he is necessarily excluded from all the enjoyments attendant on the supremacy of the human faculties: He, besides, goes into society under the influence of the same base combination, and suffers at every hand animal retaliation; so that he does not escape with impunity for his outrages against the moral law.

Here, then, we can perceive nothing malevolent in the institution of death, in so far as regards the lower animals. A pang certainly does attend it; but while Destructiveness must be recognised in the pain. Benevolence is equally perceptible in its effects.

To repair injuries sustained by objects governed exclusively by physical laws, no remedial process is instituted by nature. If a mirror falls, and is smashed, it remains ever after in fragments; if a ship sinks, it lies still at the bottom of the ocean, chained down by the law of gravitation. Under the organic law, on the other hand, a distinct remedial process is established. If a tree is blown over, every root that remains in the ground will double its exertions to preserve life; if a branch is lopped off, new branches will shoot out in its place; if a leg in an animal is broken, the bone will reunite; if a muscle is severed, it will grow together; if an artery is obliterated, the neighbouring arteries will enlarge their dimensions, and perform its duty. The Creator, however, not to encourage animals to abuse this benevolent institution, has established pain as an attendant on infringement of the organic law, and made them suffer for the violation of it, even while he restores them. It is under this law that death has received its pangs. Instant death is not attended with pain of any perceptible duration; and it is only when a lingering death occurs in youth and middle age, that the suffering is severe. Dissolution, however, does not occur at these periods *as a direct and intentional result of the organic laws*, but as the consequence of infringement of them. Under the fair and legitimate operation of these laws, the individual whose constitution was at first sound, and whose life has been in accordance with their dictates, will live till old age fairly wears out his organised frame, and then the pang of expiration is little perceptible.*

This view of our constitution is objected to by some persons, because disease appears to them to invade our bodies, and after a time to end in death or disappear, without any organic cause being discoverable. On this subject I would observe, that there is a vast difference between the uncertain and the unascertained. It is now universally admitted that all the movements of matter are regulated by laws, and that the motions are never uncertain, although their laws may in some instances be unascertained. The revolutions of the planets, for example, are fully understood, while those of some of the comets are as yet unknown; but no philosopher imagines that the latter are uncertain. The minutest drop of water that descends the mighty Fall of Niagara, is regulated in all its movements by definite laws—whether it rise in mist, and float in the atmosphere to distant regions, there to descend as rain; or be absorbed by a neighbouring shrub, and reappear as an atom in a blossom adorning the Canadian shore; or be drunk up by a living creature, and sent into the wonderful circuit of its blood; or become a portion of an oak, which at a future time shall career over the ocean as a ship. Nothing can be less ascertained, or probably less ascertainable by mortal study, than the motions of such an atom; but every philosopher will, without a moment's hesitation, concede that not one of them is uncertain.† The first element in a philosophic understanding is the capacity of extending the same conviction to the events evolved in every department of nature. A man who sees disease occurring in youth or middle age, and whose mind is not capable of perceiving that it is the result of imperfect or excessive action in some vital organ, and that imperfect or excessive action is just another name for deviation from the proper healthy state of that organ, is not capable of reasoning on the subject. It may be true that in many instances our knowledge is so imperfect, that we are incapable of unfolding the chain of connexion between the disease and its organic cause; but he is no philosopher who doubts the *reality* of the connexion.

One reason of the obscurity that prevails on this subject, in the minds of persons not medically educated, is ignorance of the structure and functions of the body; and another is, that diseases appear under two very distinct forms—structural and functional—

* The following table is copied from an interesting article by Mr William Fraser, on the History and Constitution of Benefit or Friendly Societies, published in the Edinburgh New Philosophical Journal for October 1827, and is deduced from Returns by Friendly Societies in Scotland for various years, from 1750 to 1821. It shows how much sickness increases with age, and how little there is of it in youth, even in the present disordered state of human conduct. We may expect the quantity to decrease, at all ages, in proportion to the increase of obedience to the organic laws. It is chiefly in advanced life, when the constitution has lost a portion of its vigour, that the accumulated effects of disobedience become apparent.

Average Annual Sickness of Each Individual.

Age.	Weeks and Decimals.	Weeks.	Days.	Hours.	Proportion of Sick Members.
Under 20	0.3797	0	2	16	1 in 136.95
20–30	0.5916	0	4	3	1 " 87.89
30–40	0.6865	0	4	19	1 " 75.74
40–50	1.0273	1	0	4	1 " 50.61
50–60	1.8806	1	6	3	1 " 27.65
60–70	5.6337	5	4	10	1 " 9.23
Above 70	16.5417	16	3	19	1 " 3.14

† I owe this forcible illustration to Dr Chalmers, having heard it in one of his Lectures.

only the first of which is understood by common observers to constitute a proper organic malady. If an arrow is shot into the eye, there is derangement of the structure; and the most determined opponent of the natural laws will at once admit the connexion between the blindness which ensues, and the lesion of the organ. But if a watchmaker or an optical-instrument-maker, by long-continued and excessive exertion of the eye, has become blind, the disease is called functional; the function, from its organ being overwrought, has given way, but frequently no alteration of structure can be perceived. No philosophic physiologist, however, doubts that there *is* a change in the structure, corresponding to the functional derangement, although human observation cannot detect it. He never says that it is nonsense to assert that the patient has become blind in consequence of infringement of the organic laws. It is one of these laws that the eyes shall be exercised moderately, and it is a breach of that law to strain them to excess. The same principle applies to an immense number of diseases occurring under the organic laws. Imperfections in the tone, structure, or proportion of certain organs, may exist at birth, so hidden by their situation, or so slight, as not to be readily perceptible, but not the less on that account real and important; or deviations may be made gradually and imperceptibly from the proper and healthy exercise of the functions; and from one or other cause disease may invade the constitution. Religious persons term the disease a dispensation of God's providence; the careless name it an unaccountable event; but the enlightened physician invariably views it as the result of imperfect or excessive action of some organ or another, and he never doubts that it has been caused by deviations from the laws which the Creator has prescribed for the regulation of the animal economy. The objection that the doctrine of the organic laws which I have been inculcating is unsound, because diseases come and go without uneducated persons being able to trace the causes, has not a shadow of philosophy to support it. I may err in my exposition of these laws; but I hope that I do not err in stating that neither disease nor death, in early and middle life, can take place under the ordinary administration of Providence, except when the laws have been infringed.

The pains of premature death, then, are the punishments of infringement of the organic law; and the object of that chastisement probably is to impress upon us the necessity of obeying them that we may live, and to prevent our abusing the remedial process inherent to a great extent in our constitution.

Let us now view death as an institution appointed to man. If it be true that the organic constitution of man, when sound in its elements, and preserved in accordance with the organic laws, is fairly calculated to endure in health from infancy to old age; and that death, when it occurs during the early or middle periods of life, is the consequence of departure from the physical and organic laws; it follows, that, even in premature death, a benevolent principle is discernible. Although the remedial process restores animals from moderate injuries, yet the very nature of the organic law must place a limit to it. If life had been preserved, and health restored, after the brain had been blown to atoms by a bombshell, as effectually as a broken leg and a cut finger are healed, this would have been an actual abrogation of the organic law; and all the curbs which that law imposes on the lower propensities, and all the incitements which it affords to the higher sentiments and intellect, would have been lost. The limit, then, is this—that any disobedience from the effects of which restoration is permitted, shall be moderate in extent, and shall not involve, to a great degree, any organ essential to life, such as the brain, lungs, stomach, or intestines. The very maintenance of the law, with all its advantages, requires that restoration from grievous derangement of these organs should not be permitted. When we reflect on the hereditary transmission of qualities to children, we clearly perceive benevolence to the race, in the institution which cuts short the life of an individual in whose person disease of essential organs has become so great as to have exceeded the limits of the remedial process; for the extension of the punishment of his errors over an innumerable posterity is thereby prevented. In premature death, then, we see two objects accomplished: *first*, the individual sufferer is withdrawn from agonies which could serve no beneficial end to himself—he has transgressed the limits of recovery, and continued life would be protracted misery; and, *secondly*, the race is guaranteed against the future transmission of his disease by hereditary descent.

The disciple of Mr Owen formerly alluded to, who had grievously transgressed the organic law and suffered a punishment of equal intensity, observed, when in the midst of his agony—"Philosophers have urged the institution of death as an argument against divine goodness; but not one of them could experience, for five minutes, the pain which I now endure, without looking upon it as a most merciful arrangement. I have departed from the natural laws, and suffered the punishment; but I see in death only the Creator's benevolent hand, stretched out to terminate my agonies when they cease to serve any beneficial end." On this principle, the death of a feeble and sickly child is an act of mercy to it. It withdraws a being, in whose person the organic laws have been violated, from useless suffering; cutting short, thereby, also the transmissions of its imperfections to posterity. If, then, the organic institutions which inflict pain and disease, as punishments for transgressing them, are founded in benevolence and wisdom; and if death, in the early and middle periods of life, is an arrangement for withdrawing the transgressor from farther suffering, after return to obedience is impossible, and protecting the race from the consequences of his errors, it also is in itself wise and benevolent.

This, then, leaves only *death in old age* as a natural and unavoidable institution of the Creator. It will not be denied, that, if old persons, when their powers of enjoyment are fairly exhausted, and their cup of pleasure is full, could be removed from this world, as we have supposed the lower animals to be, in an instant, and without pain or consciousness, to make way for a fresh and vigorous offspring, about to run the career which the old have terminated, there would be no lack of benevolence and justice in the arrangement. At present, while we live in ignorance and habitual neglect of the organic laws, death probably comes upon us with more pain and agony, even in advanced life, than would be its legitimate accompaniment if we placed ourselves in accordance with these; so that we are not now in a condition to ascertain the *natural* quantity of pain necessarily attendant on death. Judging from analogy, we may conclude, that the close of a long life, founded at first, and afterwards spent, in accordance with the Creator's laws, would not be accompanied with great organic suffering, but that an insensible decay would steal upon the frame.

Be this, however, as it may, I observe, in the next place, that as the Creator has bestowed on man animal faculties that fear death, and reason that carries home to him the conviction that he must die, it is an interesting inquiry, whether He has provided any *natural* means of relief from the consequences of this combination of terror. "And what thinkest thou," said Socrates to Aristodemus, "of this continual love of life, this dread of dissolution, which takes possession of us from the moment that we are conscious of existence?" "I think of it," answered he, "as the means employed by the same great and wise artist, deliberately determined to preserve what he has made." Lord Byron strongly expresses the same opinion, and is struck with the energetic efforts which he instinctively made in a moment of danger, to preserve his life, although in his hours of calm reflection he felt so unhappy that he wished to die. There are reasons for believing not only that the love of life is a special instinct, but that it is connected with a parti-

cular organ, which is supposed to be situated at the base of the brain; and that, *cæteris paribus*, the feeling varies in intensity in different individuals, according to the size of the organ. I have ascertained, from numerous confidential communications, as well as by observation, that even when external circumstances are equally prosperous and happy, there are great differences in the desire of life in different minds. Some persons have assured me, that death, viewed even as the extinction of being, and without reference to a future state, did not appear to them in the least appalling, or calculated, when contemplated as their certain fate, to impair the enjoyment of life; and these were not profligate men, whose vices might make them desire annihilation as preferable to future punishment, but persons of pure lives and pious dispositions. This experience is so different from the feelings entertained by ordinary persons, that I have been led to ascribe it to a very small developement of the organ of the Love of Life in these individuals. A medical gentleman who was attached to the native army in India, informed me, that in many of the Hindoos the love of life was by no means strong. On the contrary, it was frequently found necessary to interpose force to compel them to make even moderate exertions, quite within the compass of their strength, to avoid death. That part of the base of the brain which lies between the ear and the anterior lobe, is generally narrow, measuring across the head, in such individuals. If there be an organ for the love of life, the vivacity of the instinct will diminish in proportion as the organ decays; so that age, which induces the certain approach of death, will, in a corresponding degree, strip him of his terrors. The apparent exceptions to this rule will be found in cases in which this organ predominates in size and activity, and preserves an ascendancy over the other organs even in decay.

These ideas, however, are thrown out only as speculations, suggested by the facts before described. Whatever may be thought of them, it is certain that the Creator has bestowed moral sentiments on man, and arranged the whole of his existence on the principles of their supremacy; and these, when duly cultivated and enlightened, are calculated to withdraw from him the terrors of death, in the same manner as unconsciousness of its existence saves from them the lower animals.

1*st*, It is obvious that Amativeness and Philoprogenitiveness are provided with direct objects of gratification, as one concomitant of the institution of death. If the same individuals had lived here for ever, there would have been no field for the enjoyment that flows from the domestic union and the rearing of offspring. The very existence of these propensities shows that the production and rearing of young form part of the design of creation; and the successive production of young appears necessarily to imply removal of the old.

2*d*, Had things been otherwise arranged, all the other faculties would have been limited in their gratifications. Conceive, for a moment, how much exercise is afforded to our intellectual and moral powers, in acquiring knowledge, communicating it to the young, and providing for their enjoyments—also, what a delightful exercise of the higher sentiments is implied in the intercourse between the aged and the young; all which pleasures would have been unknown had there been no young in existence, which there could not have been without a succession of generations.

3*d*, Constituted as man is, the succession of individuals withdraws beings whose physical and mental constitutions have run their course and become impaired in sensibility, and substitutes in their place fresh and vigorous minds and bodies, far better adapted for the enjoyment of creation.

4*th*, If I am right in the position that the organic laws transmit to offspring, in an increasing ratio, the qualities most active in the parents, the law of succession provides for a far higher degree of improvement in the race than could have been reached, supposing the permanency of a single generation possessing the present human constitution.

Let us inquire, then, how the moral sentiments are affected by death in old age, as a natural institution.

Benevolence, glowing with a disinterested desire for the diffusion and increase of enjoyment, utters no complaint against death in old age, as a transference of existence from a being impaired in its capacity for usefulness and pleasure, to one fresh and vigorous in all its powers, and fitted to carry forward, to a higher point of improvement, every beneficial measure previously begun. Conscientiousness, if thoroughly enlightened, perceives no infringement of justice in the calling on a guest, satiated with enjoyment, to retire from the banquet, so as to permit a stranger with a keener and more youthful appetite to partake; and Veneration, when instructed by intellect that this is the institution of the Creator, and made acquainted with its objects, bows in humble acquiescence to the law. Now, if these powers have acquired, in any individual, that complete supremacy which they are clearly intended to hold, he will be placed by them as much above the terror of death as a natural institution, as the lower animals are by being ignorant of its existence. And unless the case were so, man would, by the very knowledge of death, be rendered, during his whole life, more miserable than they.

In these observations I have said nothing of the prospect of a future existence as a palliative of the evils of dissolution, because I was bound to regard death, in the first instance, as the result of the organic law, and to treat of it as such. But no one who considers that the prospect of a happy life to come, is directly addressed to Veneration, Hope, Wonder, Benevolence, and Intellect, can fail to perceive that this consolation also is clearly founded on the principle, that the moral sentiments are intended by the Creator to protect man from the terrors of death.

The true view of death, therefore, as a natural institution, is, that it is an essential part of the very system of organisation; that birth, growth, and arrival at maturity, as completely imply decay and death in old age, as morning and noon imply evening and night, as spring and summer imply harvest, or as the source of a river implies its termination. Besides, organised beings are constituted by the Creator to be the food of other organised beings, so that some must die that others may live. Man, for instance, cannot live on stones, or earth, or water, which are not organised, but must feed on vegetable and animal substances; so that death is as much, and as essentially, an inherent attribute of organisation as life itself. If vegetables, animals, and men, had been destined for a duration like that of mountains, we may presume, from analogy, that God—instead of creating a primitive pair of each, and endowing these with extensive powers of reproduction, so as to usher into existence young beings destined to grow up to maturity by insensible degrees—would have furnished the world with its definite complement of living beings, perfect at first in all their parts and functions, and that these would have remained, like hills, without diminution and without increase.

To prevent, however, all chance of being misapprehended, I repeat, that I do not at all allude to the state of the soul or mind after death, but merely to the dissolution of organised bodies; that, according to the soundest view which I am able to obtain of the natural law, pain and death during youth and middle age, in the human species, are consequences of departure from the Creator's laws—while death in old age, by insensible decay, is an essential and apparently indispensable part of the system of organic existence; that this arrangement admits of the succession of individuals, substituting the young and vigorous for the feeble and decayed; that it is directly the means by which organised beings live, and indirectly the means by which Amativeness, Philoprogenitiveness, and a variety of our other faculties, obtain gratifica-

tion; that it admits of the race ascending in the scale of improvement, both in their organic and in their mental qualities; and, finally, that the moral sentiments, when supreme in activity, and enlightened by intellect, which perceives its design and consequences, are calculated to place man in harmony with it; while religion addresses its consolation to the same faculties, and completes what reason leaves undone.

If the views now unfolded be correct, death in old age will never be abolished as long as man continues an organised being; but pain and the frequency of premature death will decrease, in the exact ratio of his obedience to the physical and organic laws. It is interesting to observe, that there is already some evidence of this process having actually begun. About seventy years ago, tables of the average duration of life in England were compiled for the use of the Life Insurance Companies; and from them it appears that the average duration of life was then 28 years—that is, 1000 persons being born, and the years of their respective lives being added together, and divided by 1000, the result was 28 to each. By recent tables, it appears that the average is now 32 years to each; that is to say, in consequence of superior morality, cleanliness, knowledge, and general obedience to the Creator's laws, fewer individuals now perish in infancy, youth, and middle age, than thus perished seventy years ago. Some persons have said that the difference arises from errors in compiling the old tables, and that the superior habits of the people are not the cause. It is probable that there may be a portion of truth in both views. There may be some errors in the old tables, but it is quite natural that increasing knowledge and stricter obedience to the organic laws should diminish the number of premature deaths. If this idea be correct, the average duration of life should go on increasing; and our successors, two centuries hence, may probably attain to an average of 40 years, and then ascribe to errors in our tables the present low average of 32.*

SECT. III.—CALAMITIES ARISING FROM INFRINGEMENT OF THE MORAL LAW.

We come now to consider the Moral Law, which is proclaimed by the higher sentiments and intellect, acting harmoniously, and holding the animal faculties in subjection. In surveying the moral and religious codes of different nations, and the moral and religious opinions of different philosophers, every reflecting mind must have been struck with their diversity. Phrenology, by demonstrating the differences of combination of the faculties, enables us to account for these varieties of sentiment. The code of morality framed by a legislator in whom the animal propensities were strong and the moral sentiments weak, would be very different from one instituted by another lawgiver, in whom this combination was reversed. In like manner, a system of religion, founded by an individual in whom Destructiveness, Wonder, and Cautiousness, were very large, and Veneration, Benevolence, and Conscientiousness deficient, would present views of the Supreme Being widely dissimilar to those which would be promulgated by a person in whom the last three faculties and intellect decidedly predominated. Phrenology shows that the particular code of morality and religion *which is most completely in harmony with the whole faculties of the individual,* will necessarily appear to him to be the best *while he refers only to the dictates of his individual mind as the standard of right and wrong.* But if we are able to show that the *whole scheme of external creation is arranged in harmony with certain principles, in preference to others,* so that enjoyment flows upon the individual from without when his conduct is in conformity with them, and that evil overtakes him when he departs from them, we shall then obviously prove that the former is the morality and religion established by the Creator, and that individual men, who support different codes, must necessarily be deluded by imperfections in their own minds. That constitution of mind, also, may be pronounced to be the best, which harmonises most completely with the morality and religion established by the Creator's arrangements. In this view, *morality becomes a science,* and departures from its dictates may be demonstrated as practical follies, injurious to the real interest and happiness of the individual, just as errors in logic are capable of refutation to the satisfaction of the understanding.

Dugald Stewart has most justly remarked, that "the importance of agriculture and of religious toleration to the prosperity of states, the criminal impolicy of thwarting the kind arrangements of Providence by restraints upon commerce, and the duty of legislators *to study the laws of the moral world as the groundwork and standard of their own,* appear, to minds unsophisticated by inveterate prejudices, as approaching nearly to the class of axioms;—yet, how much ingenious and refined discussion has been employed, even in our own times, to combat the prejudices which every where continue to struggle against them; and how remote does the period yet seem, when there is any probability that these prejudices will be completely abandoned!"* The great cause of the long continuance of these prejudices, is the want of an intelligible and practical philosophy of morals. Before ordinary minds can perceive that the world is really governed by divine laws, it is obvious that they must become acquainted with, *first,* the nature of man, physical, animal, moral, and intellectual; *secondly,* the relations of the different parts of that nature to each other; and, *thirdly,* the relationship of the whole to God and external objects. The present treatise is an attempt (a very feeble and imperfect one indeed) to arrive, by the aid of phrenology, at a demonstration of morality as a science. The interests dealt with in the investigation are so elevating, and the effort itself is so delightful, that the attempt carries its own reward, however unsuccessful in its results. I am not without hope, that if phrenology as the science of mind, and the doctrine of the natural laws, were taught to the people as part of their ordinary education, the removal of these prejudices would be considerably accelerated.

Assuming, then, that, among the faculties of the mind, the higher sentiments and intellect hold the natural supremacy, I shall endeavour to show that obedience to the dictates of these powers is rewarded with pleasing emotions in the mental faculties themselves, and with the most beneficial external consequences; whereas disobedience is followed by deprivation of these emotions, by painful feelings within the mind, and by great external evil.

First, Obedience is accompanied by pleasing emotions in the faculties. It is scarcely necessary to dwell on the circumstance, that every propensity, sentiment, and intellectual faculty, when gratified in harmony with all the rest, is a fountain of pleasure. How many exquisite thrills of joy arise from Philoprogenitiveness, Adhesiveness, Acquisitiveness, Constructiveness, Love of Approbation, and Self-Esteem, when gratified in accordance with the moral sentiments! Who that has ever poured forth the aspirations of Hope, Ideality, Wonder, and Veneration, directed to an object in whom Intellect and Conscientiousness also rejoiced, has not experienced the deep delight of such an exercise? And who is a stranger to the grateful pleasures attending an active Benevolence? Turning to the intellect, what pleasures are afforded by the scenery of nature, by painting, poetry, and music, to those who possess the combination of faculties suited to these objects! And how rich a feast does philosophy yield to those who possess large reflective organs, combined with Concentrativeness and Conscientiousness! The reader is requested, therefore, to keep steadily in view, that these exquisite rewards are attached by the Creator to the active exercise of our faculties in accordance with the moral law; and that one punishment, clear, obvious, and undeniable, inflicted on those who neglect or

* See Appendix, No. IX.

* Prelim. Dissert. to Supp. Encyc. Brit. p. 127.

infringe that law, is *deprivation* of these pleasures. This is a consideration very little attended to; because mankind, in general, live in such habitual neglect of the moral law, that they have but to a very partial extent experienced its rewards, and do not know the enjoyment they are deprived of by its infringement. Before its full measure can be judged of, the mind must be instructed in its own constitution, in that of external objects, and in the relationship established between it and them, and between it and the Creator. Until a tolerably distinct perception of these truths be obtained, the faculties cannot enjoy repose, nor act in full vigour and harmony: while, for example, our forefathers regarded the marsh fevers to which they were subjected in consequence of deficient draining of their fields—and the outrages on person and property, attendant on the wars waged by the English against the Scots, or by one feudal lord against another, even on their own soil—not as punishments for particular infringements of the organic and moral laws, to be removed by obedience to these laws, but as inscrutable dispensations of God's providence, which it behoved them meekly to endure, but not to avert—the full enjoyment which the moral and intellectual faculties were fairly calculated by the Creator to afford, could not be experienced. Benevolence would pine in dissatisfaction; Veneration would flag in its devotions; and Conscientiousness would suggest endless surmises of disorder and injustice in a scheme of creation under which such evils occurred and were left without a remedy:—in short, the full tide of moral, religious, and intellectual enjoyment could not possibly flow, until views more in accordance with the constitution and desires of the moral faculties were obtained. The same evil still afflicts mankind to a prodigious extent. How is it possible for the Hindoo, Mussulman, Chinese, and savage American, while they continue to worship deities whose qualities outrage Benevolence, Veneration, and Conscientiousness, and while they remain in profound ignorance of almost all the Creator's natural institutions, in consequence of infringing which they suffer punishment without ceasing—how is it possible for such men to form even a conception of the gratifications which the moral and intellectual nature of man is calculated to enjoy, when exercised in harmony with the Creator's real character and institutions? This operation of the moral law is not the less real because many do not recognise it. Sight is not a less excellent gift to those who see, because some men born blind have no conception of the extent of pleasure and advantage from which the want of it cuts them off.

The qualities manifested by the Creator may be inferred from the works of creation; but it is obvious, that, to arrive at the soundest views, we would need to know his institutions thoroughly. To a grossly ignorant people, who suffer hourly from transgression of his laws, the Deity will appear infinitely more mysterious and severe than to an enlightened nation, who trace the principles of his government in many departments of his works, and who, by observing his laws, avoid the penalties of infringement. The character of the Divine Being, under the natural system, will go on rising in human apprehension, in exact proportion as his works shall be understood. The low and miserable conceptions of God formed by the vulgar among the Greeks and Romans, were the reflections of their own ignorance of natural, moral, and political science. The discovery and improvement of phrenology must necessarily have a great effect on natural religion. Before phrenology was known, the moral and intellectual constitution of man was unascertained: in consequence, the relations of external nature towards it could not be competently judged of; and, while these were involved in obscurity, many of the ways of Providence must have appeared mysterious and severe, which in themselves were quite the reverse. Again, as bodily suffering and mental perplexity would bear a proportion to this ignorance, the character of God would appear to the natural eye in that condition, much more unfavourable than it will seem after these clouds of darkness shall have passed away.

Some persons, in their great concernment about a future life, are prone to overlook the practical direction of the mind in the present. When we consider the nature and objects of the mental faculties, we perceive that a great number of them have the most obvious and undeniable reference to this life: for example, Amativeness, Philoprogenitiveness, Combativeness, Destructiveness, Acquisitiveness, Secretiveness, Cautiousness, Self-Esteem, and Love of Approbation, with Size, Form, Colouring, Weight, Tune, Wit, and probably other faculties, stand in such evident relationship to this particular world, with its moral and physical arrangements, that if they were not capable of legitimate application here, it would be difficult to assign a reason for their being bestowed on us. We possess also Benevolence, Veneration, Hope, Ideality, Wonder, Conscientiousness, and Reflecting Intellect, all of which appear to be particularly adapted to a higher sphere. But the important consideration is, that here on earth these two sets of faculties are combined; and, on the same principle that led Sir Isaac Newton to infer the combustibility of the diamond, I am disposed to expect that the external world, when its constitution and relations shall be sufficiently understood, will be found to be in harmony with all our faculties—and that of course the character of the Deity, as unfolded by the works of creation, will more and more gratify our moral and intellectual powers, in proportion as knowledge shall advance. The structure of the eye is admirably adapted to the laws of light, that of the ear to the laws of sound, and that of the muscles to the laws of gravitation; and it would be strange if our mental constitution were not as wisely adapted to the general order of the external world.

The principle is universal and admits of no exception, that want of power and activity in every faculty, is attended with deprivation of the pleasures attendant on its vivacious exercise. He who is so deficient in Tune that he cannot distinguish melody, is cut off from a vast source of gratification enjoyed by those who possess that organ in a state of vigour and highly cultivated; and the same principle holds in the case of every other organ and faculty. Criminals and profligates of every description, therefore, from the very constitution of their nature, are excluded from great enjoyments attendant on virtue; and this is the *first* natural punishment to which they are inevitably liable. Persons also, who are ignorant of the constitution of their own minds, and the relations among external objects, not only suffer many direct evils on this account, but, through the consequent inactivity of their faculties, are, besides, deprived of many exalted enjoyments. The works of creation, and the character of the Deity, are the legitimate objects of our highest powers; and hence he who is blind to their qualities, loses nearly the whole benefit of his moral and intellectual existence. If there is any one to whom these gratifications are unknown, or appear trivial, either he must, to a very considerable degree, be still under the dominion of the animal propensities, or his views of the Creator's character and institutions are not in harmony with the natural dictates of the moral sentiments and intellect. The custom of teaching children to regard with the highest admiration the literature and history of the Greeks and Romans, stained with outrages on all the superior faculties of man, and of diverting their minds away from the study of the Creator and his works, has had a most pernicious effect on the views entertained of this world by many excellent and intellectual individuals. This is truly preferring the achievements of barbarous men to the glorious designs of God; and we need not be surprised that no satisfaction to the moral sentiments is experienced while such a course of education is pursued.

But, in the *second* place, as the world is arranged

on the principle of the supremacy of the moral sentiments and intellect, observance of the moral law is attended with external advantages, and infringement of it with positive evil consequences; and from this constitution arises the second natural punishment of misconduct.

Let us trace the advantages of obedience. In the domestic circle, if we preserve habitually Benevolence, Conscientiousness, Veneration, and Intellect, supreme, it is quite undeniable that we shall rouse the moral and intellectual faculties of children, servants, and assistants, to love us, and to yield us willing service, obedience, and aid. Our commands will then be reasonable, mild, and easily executed, and the commerce will be that of love. With regard to our equals in society, what would we not give for a friend in whom we were perfectly convinced of the supremacy of the moral sentiments; what love, confidence, and delight, would we not repose in him! To a merchant, physician, lawyer, magistrate, or an individual in any public employment, how invaluable would be the habitual supremacy of these sentiments! The Creator has given different talents to different individuals, and limited our powers, so that we execute any work best by confining our attention to one department of labour—an arrangement which amounts to a direct institution of separate trades and professions. Under the natural laws, then, the manufacturer may pursue his calling with the entire approbation of all the moral sentiments, for he is dedicating his talents to supply the wants of his fellow-men; and how much more successful will he not be, if his every proceeding is accompanied by the desire to act benevolently and honestly towards those who are to consume and pay for the products of his labour! He cannot gratify his Acquisitiveness half so successfully by any other method. The same remark applies to the merchant, the lawyer, and the physician. The lawyer and physician whose whole spirits breathe a disinterested desire to consult, as a paramount object, the interests of their clients and patients, not only obtain the direct reward of gratifying their own moral faculties, which is no slight enjoyment, but also reap a positive gratification to their Self-Esteem and Love of Approbation, in high respect and well-founded reputation—and to their Acquisitiveness, in increasing emolument, not grudgingly paid but willingly offered, from persons who feel the worth of the services bestowed.

There are three conditions required by the moral and intellectual law, which must all be observed to insure its rewards. 1*st*, The department of industry selected must be really useful to human beings: Benevolence demands this; 2*d*, The quantum of labour bestowed must bear a just proportion to the natural demand for the commodity produced: Intellect requires this; and, 3*d*, In our social connexions, we must imperatively attend to the organic law, that different individuals possess different developements of brain, and in consequence different natural talents and dispositions—and we must rely on each, only to the extent warranted by his natural endowment.

If, then, an individual have received, at birth, a sound organic constitution and favourably developed brain, and if he live in accordance with the physical, the organic, the moral, and the intellectual laws, it appears to me that, in the constitution of the world, he has received an assurance from the Creator, of provision for his animal wants, and high enjoyment in the legitimate exercise of his various mental powers.

I have already observed, that before we can obey the Creator's institutions we must know them; that the science which teaches the physical laws is natural philosophy; and that the organic laws belong to the department of anatomy and physiology: and I now add, that it is the business of the Political Economist to unfold the kinds of industry that are really necessary to the welfare of mankind, and the degrees of labour that will meet with a just reward. The leading object of political economy, as a science, is to increase enjoyment, by directing the application of industry. To attain this end, however, it is obviously necessary that the nature of man, the constitution of the physical world, and the relations between these, should be known. Hitherto, the knowledge of the former of these elementary parts has been very deficient, and, in consequence, the whole superstructure has been weak and unproductive, in comparison with what it may become when founded on a more perfect basis. Political Economists have never taught that the world is arranged on the principle of supremacy of the moral sentiments and intellect—that, consequently, to render man happy, *his leading pursuits must be such as will exercise and gratify these powers*—and that his life will necessarily be miserable, if devoted entirely to the production of wealth. They have proceeded on the notion, that the accumulation of wealth is the *summum bonum*: but all history testifies, that national happiness does not invariably increase in proportion to national riches; and until they shall perceive and teach that intelligence and morality are the foundation of all lasting prosperity, they will never interest the great body of mankind, nor give a valuable direction to their efforts.

If the views contained in the present treatise be sound, it will become a leading object with future masters in that science, to demonstrate the necessity that civilised man should limit his bodily, and increase his moral and intellectual occupations, as the only means of saving himself from ceaseless punishment under the natural laws.

The idea of men in general being taught natural philosophy, anatomy, physiology, political economy, and the other sciences that expound the natural laws, has been sneered at as utterly absurd and ridiculous.* But I would ask, In what occupations are human beings so urgently engaged, that they *have no leisure* to bestow on the study of the Creator's laws? A course of lectures on natural philosophy would occupy sixty or seventy hours in the delivery; a course on anatomy and physiology the same; and a pretty full course on phrenology can be delivered in forty hours! These, twice or thrice repeated, would serve to initiate the student, so that he could afterwards advance in the same paths, by the aid of observation and books. Is life, then, so brief, and are our hours so urgently occupied by higher and more important duties, that we cannot afford these pittances of time to learn the laws that regulate our existence? No! The only difficulty is in obtaining the *desire* for knowledge; for when that is attained, time will not be wanting. No idea can be more preposterous, than that of human beings having no time to study and obey the natural laws. These laws punish so severely when neglected, that they cause the offender to lose far more time in undergoing his chastisement, than would be requisite to obey them. A gentleman extensively engaged in business, whose nervous and digestive systems have been impaired by neglect of the organic laws, was desired to walk in the open air at least one hour a-day; to repose from all exertion, bodily and mental, for one full hour after breakfast, and another full hour after dinner, because the brain cannot expend its energy to good purpose in thinking and in aiding digestion at the same time; and to practise moderation in diet: this last injunction he regularly observed, but he laughed at the very idea of his having three hours a-day to spare for attention to his health. The reply was, that the organic laws admit of no exception, and that he must either obey them or take the consequences; but that the time lost in enduring the punishment would be double or treble that requisite for obedience: and, accordingly, the fact was so. Instead of fulfilling an appointment, it is quite

* It is pleasing to observe, that great progress has been made in appreciating the importance of the kind of education here recommended, since the first edition of this work was published. In Edinburgh, an association of the industrious classes has been formed for obtaining instruction in useful and entertaining knowledge, and it has met with the greatest encouragement. Under its superintendence, lectures have been delivered on all the sciences enumerated in the text, to audiences consisting of both sexes, and with eminent success. A notice of its constitution will be found in the Appendix, No. X.

usual for him to send a note, perhaps at two in the afternoon, in these terms :—"I was so distressed with headache last night, that I never closed my eyes; and to-day I am still incapable of being out of bed." On other occasions, he is out of bed, but apologises for incapacity to attend to business, on account of an intolerable pain in the region of the stomach. In short, if the hours lost in these painful sufferings were added together, and distributed over the days when he is able for duty, he would find them far outnumber those which would suffice for obedience to the organic laws —and with this difference in the results: by neglect he loses both his hours and his enjoyment; whereas, by obedience, he would be rewarded by aptitude for business, and a pleasing consciousness of existence.

We shall understand the operation of the moral and intellectual laws more completely, by attending to the evils which arise from neglect of them.

I. Let us consider INDIVIDUALS. At present, the almost universal persuasion of civilised men is, that happiness consists in the possession of wealth, power, and external splendour; objects related to the animal faculties and intellect much more than to the moral sentiments. In consequence, each individual sets out in the pursuit of these as the chief business of his life; and, in the ardour of the chase, he recognises no limitations on the means which he may employ, except those imposed by the municipal law. He does not perceive or acknowledge the existence of natural laws, determining not only the sources of his happiness, but the steps by which it may be attained. From this moral and intellectual blindness, merchants and manufacturers, in numberless instances, hasten to be rich beyond the course of nature: that is to say, they engage in enterprises far exceeding the extent of their capital and capacity; they place their property in the hands of debtors, whose natural talents and morality are so low, that they ought never to have been entrusted with a shilling; they send their goods to sea without insuring them, or leave them uninsured in their warehouses; they ask pecuniary accommodation from other merchants, to enable them to carry on undue speculations, and become security for them in return, and both fall into misfortunes; or they live in splendour and extravagance, far beyond the limit of the natural return of their capital and talents, and speedily reach ruin as their goal. In every one of these instances, the calamity is obviously the consequence of infringement of the moral and intellectual law. The lawyer, medical practitioner, or probationer in the church, who is disappointed of his reward, will, in most cases, be found to have placed himself in a profession for which his natural talents and dispositions did not fit him, or to have pursued his vocation under the guidance chiefly of the lower propensities; preferring selfishness to honourable regard for the interests of his employers. Want of success in these professions, appears to me to be owing, in a high degree, to three causes. *First*, the brain may be too small, or constitutionally lymphatic, so that the mind does not act with sufficient energy to make an impression. *Secondly*, some particular organs indispensably requisite to success, may be very small—as Language, or Causality, in a lawyer; deficiency of the first rendering him incapable of ready utterance, and that of the second, destitute of that intuitive sagacity, which sees at a glance the bearing of the facts and principles founded on by his adversary, so as to estimate the just inferences that follow, and to point them out. A lawyer, who is weak in this power, appears to his client like a pilot who does not know the shoals and the rocks. His deficiency is perceived whenever difficulty presents itself, and he is pronounced unfit to take charge of great interests; he is then passed by, and suffers the penalties of having made an erroneous choice of a profession. The *third* cause is predominance of the animal and selfish faculties. The client and the patient discriminate instinctively between the cold, pitiless, but pretending manner of Acquisitiveness and Love of Approbation, and the unpretending genuine warmth of Benevolence, Veneration, and Conscientiousness; and they discover very speedily that the intellect inspired by the latter sees more clearly, and advances more successfully, their interests, than when animated only by the former. The victim of selfishness either never rises, or quickly sinks, wondering why his merits are neglected.

In all these instances, the failure of the merchant, and the bad success of the lawyer and physician, are the consequences of infringement of the natural laws, either by himself or by those with whom he is connected; so that the evil they suffer is the punishment for having failed in a great duty, not only to society, but to themselves.

II. Some of the CALAMITIES ARISING FROM INFRINGEMENT OF THE SOCIAL LAW may next be considered.

The greatest difficulties present themselves in tracing the operation of the moral and intellectual laws, in the wide field of social life. An individual may be made to comprehend how, if he commits an error, he should suffer a particular punishment; but when calamity overtakes whole classes of the community, each person absolves himself from all share of the blame, and regards himself simply as the victim of a general but inscrutable visitation. Let us then examine briefly the Social Law.

In regarding the human faculties, we perceive that numberless gratifications spring from the social state. The muscles of a single individual could not rear the habitations, build the ships, forge the anchors, construct the machinery, or, in short, produce the countless enjoyments that every where surround us, and which are attained in consequence of men being constituted so as instinctively to combine their powers and skill, to obtain a common end. Here, then, are very great advantages resulting directly from the social law; but, in the next place, social intercourse is the means of affording direct gratification to a variety of our mental faculties. If we lived in solitude, the propensities, sentiments, and reflecting faculties, would be deprived—some of them absolutely, and others of them nearly—of all opportunities of gratification. The social law, then, is the source of the highest delights of our nature, and its institution indicates the greatest wisdom and benevolence towards us in the Creator.

Still, however, this law does not suspend or subvert the laws instituted for the regulation of the conduct of man as an individual. If a man go to sea in a ship, the natural laws require that his intellectual faculties shall have been previously instructed in navigation, and in the features of the coasts and seas to be visited; that he shall know and avoid the shoals, currents, and eddies; that he shall trim his canvass in proportion to the gale; and that his animal faculties shall be kept so much under subjection to his moral sentiments, that he shall not abandon himself to drunkenness, sloth, or any animal indulgence, when he ought to be watchful at his duty. If he obey the natural laws, he will be safe; and if he disobey them, he may be drowned.* It is obvious that it must be a small vessel, and bound only on a short voyage, that could be managed by one man; for he must eat and sleep, and he could not perform these functions and manage his sails at the same time. It is the interest, therefore, of individuals who wish to go to sea, to avail themselves of the social law; that is, to combine their powers under one leader. By doing so, they may sail in a larger ship, have more ample stores of provisions, obtain intervals for rest, and enjoy each other's society. If at the same time they yield obedience to the intellectual laws, by placing in the situation of captain an individual fully qualified for the duty, they will enjoy the reward in sailing

* I wave at present the question of storms, which he could not foresee, as these fall under the head of ignorance of natural laws which may be subsequently discovered.

safely and in comfort; if they disregard these laws, and place in charge of the ship an individual whose intellectual faculties are weak, whose animal propensities are strong, whose moral sentiments are in abeyance, and who, in consequence, habitually neglects the natural laws, they may suffer the penalty in being wrecked.

I know it will be objected that the crew and passengers do not appoint the captain; but in every case, except impressment in the British navy, they may go into, or stay out of, a particular ship, according as they discover the captain to possess the natural qualities or not. This, at present, I am aware, ninety-nine individuals out of an hundred never inquire into; but so do ninety-nine out of an hundred neglect many other natural laws, and suffer the penalty, because their moral and intellectual faculties have never yet been instructed in the existence and effects of these, or trained to observe and obey them. But they have the power from nature of obeying them, if properly taught and trained; and, besides, I offer this merely as an illustration of the mode of operation of the social law.

Another example may be given. By employing servants, the labours of life are rendered less burdensome to the master: but he must employ individuals who know the moral law, and who possess the desire to act under it; otherwise, as a punishment for neglecting this requisite, he may be robbed, cheated, or murdered. Phrenology presents the means of observing this law, in a degree quite unattainable without it, by the facility which it affords in discovering the natural talents and dispositions of individuals.

By entering into copartnership, merchants and other persons in business may extend their employment, and gain advantages beyond those they could reap, if labouring as individuals. But, by the natural law, each must take care that his partner knows, and is inclined to obey, the moral and intellectual laws, as the only condition on which the Creator will permit him *securely* to reap the *advantages* of the social compact. If a partner in China be deficient in intellect and moral sentiment, another in London may be utterly ruined. It is said that this is an example of the innocent suffering for, or at least along with, the guilty; but it is not so. It is an example of a person seeking to obtain the *advantages* of the social law without conceiving himself bound to obey the conditions required by it; the first of which is, that those individuals of whose services he avails himself shall be capable and willing to observe the moral and intellectual laws.

Let us now advert to the calamities which overtake whole classes of men, or COMMUNITIES, under the social law—trace their origin, and see how far they are attributable to infringement of the Creator's laws.

If I am right in representing the whole faculties of man as intended by the Creator to be gratified, and the moral sentiments and intellect as the higher and directing powers, with which all natural institutions are in harmony; it follows, that if large communities of men, in their systematic conduct, habitually seek the gratification of the inferior propensities, and allow either no part, or too small and inadequate a part, of their time to be devoted to the regular employment of the higher powers, they will act in direct opposition to the laws of nature, and will, of course, suffer the punishment in sorrow and disappointment. Now, to confine ourselves to our own country—it is certain that, until within these few years, the labouring population of Britain were not taught that it was any part of their duty, as rational creatures, to restrain their propensities, so as not to multiply their numbers beyond the demand for their labour and the supply of food for their offspring; and up to the present hour this most obvious and important doctrine is not admitted by one in a thousand, and not acted upon as a practical principle by one in ten thousand of those whose happiness or misery depends on observance of it. The doctrine of Malthus, that "population cannot go on perpetually increasing, without pressing on the limits of the means of subsistence, and that a check of some kind or other must, sooner or later, be opposed to it," just amounts to this—that the means of subsistence are not susceptible of such rapid and unlimited increase as the number of the people, and that, in consequence, the amative propensity must be restrained by reason, otherwise population will be checked by misery. This principle is in accordance with the views of human nature maintained in the present treatise, and applies to all the faculties. Thus, Philoprogenitiveness, when indulged in opposition to reason, leads to spoiling children, which is followed directly by misery both to them and to their parents. Acquisitiveness, when uncontrolled by reason and morality, leads to avarice or theft, and these again carry suffering in their train.

But so little are such views attended to, that the lives of the inhabitants of Britain generally are devoted to the acquisition of wealth, of power and distinction, or of animal pleasure: in other words, the great object of the labouring classes, is to live and gratify the inferior propensities; of the mercantile and manufacturing population, to gratify Acquisitiveness and Self-Esteem; of the more intelligent class of gentlemen, to gratify Self-Esteem and Love of Approbation, by attaining political, literary, or philosophical eminence; and of another portion, to gratify Love of Approbation by supremacy in fashion—and these gratifications are sought by means not in accordance with the dictates of the higher sentiments, but by the joint aid of the intellect and animal powers. If the supremacy of the moral sentiments and intellect be the natural law, then, as often observed, every circumstance connected with human life must be in harmony with it: that is to say, *first*, After rational restraint on population, and proper use made of machinery, such moderate labour as will leave ample time for the systematic exercise of the higher powers will suffice to provide for human wants; and, *secondly*, If this exercise be neglected, and the time which ought to be dedicated to it be employed in labour to gratify the propensities, direct evil will ensue—and this accordingly appears to me to be really the result.

By means of machinery, and the aids derived from science, the ground can be cultivated, and every imaginable necessary and luxury produced in ample abundance, at a moderate expenditure of labour by any population not in itself superabundant. If men were to stop whenever they had reached this point, and to dedicate the residue of each day to moral and intellectual pursuits, the consequence would be the existence of ready and steady, because not overstocked, markets. Labour, pursued till it provided abundance, but not superfluity, would meet with a certain and just reward, and would also yield a vast increase of happiness; for no joy equals that which springs from the moral sentiments and intellect excited by the contemplation, pursuit, and observance of the Creator's laws. Farther, morality would be improved; for men, being happy, would become less vicious: and, lastly, there would be improvement in the organic, moral, and intellectual capabilities of the race; for the active moral and intellectual organs of the parents would tend to increase the volume of these in their offspring—so that each generation would start not only with greater stores of acquired knowledge than those which its predecessors possessed, but with higher natural capabilities of turning them to account.

Before merchants and manufacturers can be expected to act in this manner, a great change must be effected in their sentiments and perceptions; but so was a striking revolution effected in the ideas and practices of the tenantry west of Edinburgh, when they removed the stagnant pools between each ridge of land, and banished ague from their district. If any reader will compare the state of Scotland, during the thirteenth, fourteenth, and fifteenth centuries, correctly and spiritedly represented in Sir Walter Scott's *Tales of a Grandfather*, with its present condition in regard to knowledge, morality, religion, and the comparative

ascendancy of the rational over the animal part of our nature, he will perceive so great an improvement in later times, that the commencement of the millennium itself, five or six hundred years hence, would scarcely be a greater advance beyond the present, than the present is beyond the past. If the laws of the Creator be really what are here represented, it is obvious that, were they taught as elementary truths to every class of the community, and were the sentiment of Veneration called in to enforce obedience to them, a set of new motives and principles would be brought into play, calculated to accelerate the change; especially if it were seen—what, in the next place, I proceed to show—that the consequences of neglecting these laws are the most serious visitations of suffering that can well be imagined. If the views advocated in this work be correct, the system on which the manufactures of Britain are at present conducted, is as great an aberration from the laws of nature as any recorded in the history of the world. It implies not only that the vast body of the people shall for ever remain in a condition little superior to that of mere working animals, in order that, by means of cheap labour, our traders may undersell the merchants of all other nations; but also that our manufactures and commerce shall enjoy an indefinite extension—this being essential to their prosperity as they are now conducted, although in the nature of things impossible. On the 13th of May 1830, Mr Slaney, M.P., called the attention of the House of Commons to "the increase which had taken place in the number of those employed in manufacturing and mechanical occupations, as compared with the agricultural class." He stated, that "in England, the former, as compared with the latter, were 6 to 5 in 1801; they were as 8 to 5 in 1821; and, taking the increase of population to have proceeded in the same ratio, they were now as 2 to 1. In Scotland the increase had been still more extraordinary. In that country they were as 5 to 6 in 1801; as 9 to 6 in 1821; and now they were as 2 to 1. The increase in the general population during the last twenty years had been 30 per cent.; in the manufacturing population it had been 40 per cent.; in Manchester, Coventry, Liverpool, and Birmingham, the increase had been 50 per cent.; in Leeds it had been 54 per cent.; in Glasgow it had been 100 per cent." Here we perceive that a vast population has been called into existence and trained to manufacturing industry. I do not doubt that the skill and labour of this portion of the people have greatly contributed to the wealth of the nation; but I fear that the happiness of the laborious individuals who have conferred this boon, has not kept pace with the riches which they have created. The causes of this circumstance appear to be the following:—

Several millions of human beings have been trained to manufactures, and are unfit for any other occupation. In consequence of the rapid increase of their numbers, and of vast improvements in machinery, the supply of labour has for many years outstripped the demand for it, and wages have fallen ruinously low. By a coincidence which at first sight appears unfortunate, much of the machinery of modern invention may be managed by children. The parent, who, by his own labour for twelve hours a-day, is able to earn only seven shillings a-week, adds to his income one shilling and sixpence or two shillings a-week, for each child whom he can send to the manufactory; and by the united wages of the family, a moderate subsistence may be eked out. Both parents and children, however, are reduced to a hopeless condition of toil; for their periods of labour are so long, and their remuneration is so small, that starvation stares each of them in the face when they either relax from exertion or cease to live in combination. Mental culture and moral and intellectual enjoyment are excluded, and their place is supplied by penury and labour. Dr Chalmers reports, that, in our great towns, whole masses of this class of the people are living in profound ignorance and practical heathenism. The system tends constantly to increase the evils of which it is the source. Young persons, when they arrive at manhood, find themselves scarcely able to subsist by their individual exertions; whereas, if they can add the scanty income of three or four children to their own, their condition is in some degree improved. House-rent, and the expenses of furniture and fuel, are not increased by the wants, in proportion to the contributions, of the young. Adults are thus tempted—nay, almost driven by necessity—to contract early marriages, to rear a numerous offspring, devoted to the same employments with themselves, and in this way to add to the supply of labour, already in excess. The children grow up, and in their turn follow the same course; and thus, however widely the manufactures of Britain may have extended, a still farther and indeed an indefinite extension of them seems to be demanded; for the system produces a constantly increasing, yet ignorant, starving, and miserable population, more than adequate to supply all the labour that can be profitably expended. The consequence is, that markets are overstocked with produce; prices first fall ruinously low; the operatives are then thrown idle, and left in destitution, till the surplus produce of their formerly excessive labour, and perhaps something more, are consumed: after this, prices rise too high in consequence of the supply falling rather below the demand; the labourers then resume their toil, on their former system of excessive exertion; they again overstock the market, and are again thrown idle and suffer dreadful misery.

In 1825–6–7, this operation of the natural laws was strikingly exhibited; large bodies of starving and unemployed labourers were supported on charity. How many hours did they not stand idle, and how much of excessive toil would not these hours have relieved, if distributed over the periods when they were overworked! The results of that excessive exertion were seen in the form of untenanted houses and of shapeless piles of goods decaying in warehouses—in short, in every form in which misapplied industry could go to ruin. These observations are strikingly illustrated by the following official report:—

> "*State of the Unemployed Operatives resident in Edinburgh, who are supplied with work by a Committee constituted for that purpose, according to a list made up on Wednesday the 14th March* 1827.
>
> "The number of unemployed operatives who have been remitted by the Committee for work, up to the 14th of March, are 1481
> "And the number of cases they have rejected, after having been particularly investigated, for being bad characters, giving in false statements, or being only a short time out of work, &c. &c. are 446
>
> Making together, 1927
>
> "Besides these, several hundreds have been rejected by the Committee, as, from the applicants' *own* statements, they were not considered as cases entitled to receive relief, and were not, therefore, remitted for investigation.
>
> "The wages allowed is 5s. per week, with a peck of meal to those who have families. Some youths are only allowed 3s. of wages.
>
> "The particular occupations of those sent to work are as follows:—242 masons, 643 labourers, 66 joiners, 19 plasterers, 76 sawyers, 19 slaters, 45 smiths, 40 painters, 36 tailors, 55 shoemakers, 20 gardeners, 229 various trades. Total 1481."

Edinburgh is not a manufacturing city; and if so much misery existed in it in proportion to its population, what must have been the condition of Glasgow, Manchester, and other manufacturing towns?

Here, then, the Creator's laws show themselves paramount, even when men set themselves systematically to infringe them. He intended the human race, under the moral law, not to pursue Acquisitiveness excessively, but to labour only a certain and a mode-

rate portion of their lives; and although they do their utmost to defeat this intention, they cannot succeed: they are constrained to remain idle, while their surplus produce is consuming as many days and hours as would have served for the due exercise of their moral and intellectual faculties, and the preservation of their health, if they had dedicated them regularly to these ends from day to day, as time passed over their heads. But their punishment proceeds: the extreme exhaustion of nervous and muscular energy, with the absence of all moral and intellectual excitement, create the irresistible craving for the stimulus of ardent spirits which distinguishes the labouring population of the present age; this calls into predominant activity the organs of the animal propensities; these descend to the children by the law already explained; increased crime, and a deteriorating population, are the results; and the moral and intellectual incapacity for arresting the evils becomes greater with the lapse of every generation.

According to the principles of the present treatise, what are called by commercial men "times of prosperity," are seasons of the greatest infringement of the natural laws, and precursors of great calamities. Times are not reckoned prosperous, unless *all* the industrious population is employed during *the whole day* (hours of eating and sleeping only excepted) in the production of *wealth*. This is a dedication of their whole lives to the service of the propensities, and must necessarily terminate in punishment, if the world is constituted on the principle of supremacy of the higher powers.

This truth has already been illustrated more than once in the history of commerce. The following is a recent example.

By the combination laws, workmen were punishable for uniting to obtain a rise of wages, when an extraordinary demand occurred for their labour. These laws, being obviously unjust, were at length repealed. In the summer and autumn of 1825, however, commercial men conceived themselves to have reached the highest point of prosperity, and the demand for labour was unlimited. The operatives availed themselves of the opportunity to better their condition, formed extensive combinations, and, because their demands were not complied with, struck work, and continued idle for months in succession. The master-manufacturers clamoured against the new law, and complained that the country would be ruined, if combinations were not again declared illegal, and suppressed by force. According to the principles expounded in this work, the just law must from the first have been *the most beneficial for all parties* affected by it; and the result amply confirmed this idea. Subsequent events proved that the extraordinary demand for labourers in 1825 was entirely factitious, fostered by an overwhelming issue of bank paper, much of which ultimately turned out to be worthless; in short, that, during the combinations, the master-manufacturers were engaged in an extensive system of speculative over-production, and that the combinations of the workmen presented a *natural check* to this erroneous proceeding. The ruin that overtook the masters in 1826 arose from their having accumulated, under the influence of unbridled Acquisitiveness, vast stores of commodities which were not required by society; and to have compelled the labourers, by force, to manufacture more at their bidding, would obviously have been to aggravate the evil. It is a well-known fact, accordingly, that those masters whose operatives most resolutely refused to work, and who on this account clamoured most loudly against the law, were the greatest gainers in the end. Their stocks of goods were sold off at high prices during the speculative period: and when the revulsion came, instead of being ruined by the fall of property, they were prepared, with their capitals at command, to avail themselves of the depreciation, to make new and highly profitable investments. Here again, therefore, we perceive the law of justice vindicating itself, and benefiting by its operation even those individuals who blindly denounced it as injurious to their interests. A practical faith in the doctrine that the world is arranged by the Creator in harmony with the moral sentiments and intellect, would be of unspeakable advantage to both rulers and subjects; for they would then be able to pursue with greater confidence the course dictated by moral rectitude, convinced that the result would prove beneficial, even although, when they took the first step, they could not distinctly perceive by what means. Dugald Stewart remarks that Fenelon, in his *Adventures of Telemachus*, makes Mentor anticipate some of the profoundest and most valuable doctrines of modern political economy, respecting the principles and advantages of free trade, merely by causing him to utter the simple dictates of benevolence and justice in regard to commerce. In Fenelon's day, such ideas were regarded as fitted only for adorning sentimental novels or romances; but they have since been discovered to be not only philosophical truths, but most beneficial practical maxims. This is the case apparently, because the world is really arranged on the principle of the supremacy of the moral and intellectual faculties, so that, when men act agreeably to their dictates, the consequences, although they cannot all be anticipated, naturally tend towards good.

In the whole system of the education and treatment of the labouring population, the laws of the Creator, such as I have now endeavoured to expound them, are neglected or infringed. Life with them is spent to so great an extent in labour, that their moral and intellectual powers are stinted of exercise and gratification; and mental enjoyments are chiefly those afforded by the animal propensities:—in other words, their existence is too little *rational*; they are rather organised machines than moral and intellectual beings. The chief duty performed by their higher faculties is not to afford predominant sources of enjoyment, but to communicate so much intelligence and honesty, as to enable them to execute their labours with fidelity and skill. I speak, of course, of the great body of the labouring population: there are many individual exceptions, who possess higher attainments; and I mean no disrespect to any portion of this most useful and deserving class of society: on the contrary, I represent their condition in what appears to me to be a true light, only with a view to excite them to amend it.

Does human nature, then, admit of such a modification of the employments and habits of this class, as to raise them to the condition of beings whose chief pleasures shall be derived from their rational natures?—that is, creatures whose bodily powers and animal propensities shall be subservient to their moral and intellectual faculties, and who shall derive their leading enjoyment from the latter. To attain this end, it would not be necessary that they should *cease to labour*; on the contrary, the necessity of labour to the enjoyment of life is imprinted in strong characters on the structure of man. The osseous, muscular, and nervous systems of the body, all require exercise as a condition of health; while the digestive and sanguiferous apparatus rapidly fall into disorder, if due exertion is neglected. Exercise of the body is labour; and labour directed to a useful purpose is more beneficial to the corporeal organs, and also more pleasing to the mind, than when undertaken for no end but the preservation of health.* Commerce is rendered advantageous by the Creator, because different climates yield different productions. Agriculture, manufactures, and commerce, therefore, are adapted to man's nature, and I am not their enemy. But they are not the *ends* of human existence, even on earth. Labour is beneficial to the whole human economy, and it is a mere delusion to regard it as in itself an evil; but the great principle is, that it must be moderate in both severity and duration, in order that men may enjoy and not be oppressed by it. I say *enjoy* it; because moderate exertion is pleasure—and it is only labour

* See Dr Combe's Principles of Physiology, 3d edition, pp. 135-141.

carried to *excess*, which has given rise to the common opinion that *retirement* from active industry is the goal of happiness. It may be objected that a healthy and vigorous man is not oppressed by ten or twelve hours' labour a-day; and I grant that, if he be well fed, his physical strength may not be so much exhausted by this exertion as to cause him pain. But this is regarding him merely as a working animal. My proposition is, that after ten or twelve hours of muscular exertion a-day, continued for six days in the week, the labourer is not in a fit condition for that active exercise of his moral and intellectual faculties which alone constitutes him a rational being. The exercise of these powers depends on the condition of the brain and nervous system; and these are exhausted and deadened by too much muscular exertion. The fox-hunter and ploughman fall asleep when they sit within doors and attempt to read or think. The truth of this proposition is demonstrable on physiological principles, and is supported by general experience; nevertheless, the teachers of mankind have too often neglected it. The first change, therefore, must be to limit the hours of labour, and to dedicate a portion of time daily to the exercise of the mental faculties.

So far from this limitation being unattainable, it appears to me that the progress of arts, sciences, and society, is rapidly forcing its adoption. Ordinary observers appear to conceive man's chief end, in Britain at least, to be to manufacture hardware, broadcloth, and cotton goods, for the use of the whole world, and to store up wealth. They forget that the same impulse which inspires the British with so much ardour in manufacturing, will sooner or later inspire other nations also; and that, if all Europe shall follow our example, and employ efficient machinery and a large proportion of their population in our branches of industry, which they are fast doing, the four quarters of the globe will at length be deluged with manufactured goods, only part of which will be required. When this state of things shall arrive—and in proportion as knowledge and civilisation are diffused, it will approach—men will be compelled by dire necessity to abridge their toil, because excessive labour will not be remunerated. The admirable inventions which are the boast and glory of civilised men, are believed by many persons to be at this moment adding to the misery and degradation of the people. Power-looms, steam-carriages, and steam-ships, it is asserted, have all hitherto operated directly in increasing the hours of exertion, and abridging the reward of the labourer! Can we believe that God has bestowed on us the gift of an almost creative power, solely to increase the wretchedness of the many, and minister to the luxury of the few? Impossible! The ultimate effect of mechanical inventions on human society appears to be not yet divined. I hail them as the grand instruments of civilisation, by giving leisure to the great mass of the people to cultivate and enjoy their moral, intellectual, and religious powers.

One requisite to enable man to follow pursuits connected with his higher endowments, is provision for the wants of his animal nature, viz. food, raiment, and comfortable lodging. It is clear that muscular power, intellect, and mechanical ability, have been conferred on him, with the design that he should build houses, plough fields, and fabricate commodities. But assuredly we have no warrant from reason or revelation for believing that any portion of the people are bound to dedicate their whole lives and energies, aided by all mechanical discoveries, to these ends, as their proper business, to the neglect of the study of the works and will of the Creator. Has man been permitted to discover the steam-engine, and apply it in propelling ships on the ocean and carriages on railways, in spinning, weaving, and forging iron—and has he been gifted with intellect to discover the astonishing powers of physical agents, such as are revealed by chemistry and mechanics—only that he may be enabled to build more houses, weave more cloth, and forge more iron, without any direct regard to his moral and intellectual improvement? If an individual, unaided by animal or mechanical power, had wished to travel from Manchester to Liverpool, a distance of thirty miles, he would have been under the necessity of devoting ten or twelve hours of his time, and considerable muscular energy, to the task. When roads and carriages were constructed, and horses trained, he could, by their assistance, have accomplished the same journey in four hours, with little fatigue; and now, when railways and steam-engines have been successfully completed, he may travel that distance, without any bodily fatigue whatever, in an hour and a half: and I ask, for what purpose has Providence bestowed the nine or ten hours, which are thus set free as spare time to the individual? I humbly answer—that he may be enabled to cultivate his moral, intellectual, and religious nature. Again, before steam-engines were applied to spinning and weaving, a human being would have needed to labour perhaps for a month, in order to produce linen, woollen, and cotton cloth, necessary to cover his own person for a year; or, in case of a divison of labour, a twelfth part of the population would have required to be constantly engaged in this employment: by the application of steam, the same ends may be gained in a day. I repeat the inquiry—For what purpose has Providence bestowed the twenty-nine days out of the month, set free by the invention of the steam-engine and machinery? These proportions are not stated as statistically correct, but as mere illustrations of my proposition, that every discovery in natural science, and invention in mechanics, has a direct tendency to increase the leisure of man, and to enable him to provide for his physical wants with less laborious exertion.

The question recurs—Whether is it the object of Providence, in thus favouring the human race, to enable only a portion of them to enjoy the highest luxuries, while the mass shall continue labouring animals; or is it his intention to enable *all* to cultivate and enjoy their rational nature?

In proportion as mechanical inventions shall be generally diffused over the world, they will increase the powers of production to such an extent, as to supply, by moderate labour, every want of man; and then the great body of the people will find themselves in possession of reasonable leisure, in spite of every exertion to avoid it. Great misery will probably be suffered in persevering in the present course of action, before their eyes shall be opened to this result. The first effect of these stupendous mechanical inventions threatens to be to accumulate great wealth in the hands of a few, without proportionally abridging the toil, or greatly adding to the comforts, of the many. This process of elevating a part of the community to affluence and power, and degrading the rest, threatens to proceed till the disparity of condition shall become intolerable to both, the labourer being utterly oppressed, and the higher classes harassed by insecurity. Then, probably, the ideas may occur, that the real benefit of physical discovery is to give leisure to the mass of the people, and that leisure for mental improvement is the first condition of true civilisation, knowledge being the second. The science of human nature will enable men at length to profit by exemption from excessive toil; and it may be hoped that, in course of time, the notion that man is really a rational creature, may meet with general countenance, and that sincere attempts may be made to render all ranks prosperous and happy, by institutions founded on the basis of the superior faculties.

The same means will lead to the realisation of practical Christianity. An individual whose active existence is engrossed by mere bodily labour, or by the pursuits of gain or ambition, lives under the predominance of faculties that do not produce the perfect Christian character. The true practical Christian possesses a vigorous and enlightened intellect, and moral affections glowing with gratitude to God and love to man; but how can the people at large be en-

abled to realise this condition of mind, if stimulus for the intellect and the nobler sentiments be excluded by the daily routine of their occupations?

In some districts of England, the operatives lately demanded an abridgement of labour without abatement of wages. This project was unjust, and proved unsuccessful. They ought to have given up first one hour's labour, and the price of it, and waited till the increase of capital and of demand brought up wages to their former rate, which, if they had restrained population, would certainly have happened. They ought to have then abated a second hour, submitting again to a reduction, and again waited for a re-action; and so on, till they had limited their labour to eight or nine hours a-day. The change must be gradual, and the end must be obtained by *moral* means, else it will never be accomplished at all.

The objection has been stated, that, even in the most improved condition of the great body of the people, there will still be a considerable proportion of them so deficient in talent, so incapable of improvement, and so ignorant, that their labour will be worth little; that, as they must obtain subsistence, no alternative will be left to them but to make up by protracted periods of exertion what they want in skill; and that their long-continued labour, furnished at a cheap rate, will affect all the classes above them, and indeed prevent the views now taken from ever being generally realised. This objection resolves itself into the proposition, That the people have been destined by the Creator to be labouring animals, and that, from their inherent mental defects, they are incapable generally of being raised to any more honourable station; which is just the great point at issue between the old and the new philosophy. If mankind at large (for the industrious classes constitute so very great a majority of the race, that I may be allowed to speak of them as the whole) had been intended for mere hewers of wood and drawers of water, I do not believe that the moral and intellectual faculties which they unquestionably possess would have been bestowed on them; and as they do enjoy the rudiments of all the feelings and capacities which adorn the highest of the race, and as these faculties themselves are improvable, I do not subscribe to the doctrine of the permanent incapacity of the race. I consider the operatives, in successive generations, quite capable of learning to act as rational beings; and that whenever the great majority of them shall have acquired a sense of the true dignity of their nature, and a relish for the enjoyments afforded by their higher capacities, they will become capable of so regulating the supply of labour in reference to the demand, as to obtain the means of subsistence in return for moderate exertion. In fine, I hope that few of the imbeciles alluded to in the objection will exist, and that these few will be directed and provided for by the multitude of generous and enlightened minds which will exist around them.

At the same time, there is great force in the objection, considered in reference to the present and several succeeding generations. In throwing out these views, I embrace centuries of time. I see the slow progress of the human race in the past, and do not anticipate miracles in the future. If a sound principle is developed—one having its roots in nature—there is a certainty that it will wax strong and bear fruit in due season; but that season, from the character of the plant, is a distant one. All who aim at benefiting mankind ought to keep this truth constantly in view. Almost every scheme is judged of by its effects on the living generation; whereas no great fountain of happiness ever flowed clear at first, or yielded its full sweets to the generation which discovered it.

It is now an established principle in political economy, that government ought not to interfere with industry. This maxim was highly necessary when governors were grossly ignorant of all the natural laws which regulate production and the private conduct of men; because their enactments, in general, were then absurd—they often did much harm, and rarely good. "Men," says Lord Kames, in reference to the English poor law, "will always be mending: What a confused jumble do they make, when they attempt to mend the laws of Nature! Leave Nature to her own operations; she understands them the best."* But if the science of human nature were once fully and clearly developed, it is probable that this rule might, with great advantage, be relaxed, and that the legislature might considerably accelerate improvements, by adding the constraining authority of human laws to enactments already proclaimed by the Creator. Natural laws do exist, and the Creator punishes if they are not obeyed. The evils of life are these punishments. Now, if the great body of intelligent men in any state saw clearly that a course of action pursued by the ill-informed of their fellow-subjects was the source of continual suffering, not only to the evil-doers themselves, but to the whole community, it appears to me allowable that they should stop its continuance by legislative enactment. If the majority of the middle classes resident in towns were to petition Parliament, at present, to order shops in general to be shut at eight o'clock, or even at an earlier hour, so as to allow time for the cultivation of the rational faculties of the men and women engaged in them, it would be no stretch of power to give effect to the petition: that is to say, no evil would ensue, although the ignorant and avaricious were prevented by law from continuing ignorant, and forcing all their competitors in trade to resemble them in their defects. If the Creator have so constituted the world that men may execute all necessary business, and still have time to spare for the cultivation of their rational faculties, any enactment of the legislature calculated to facilitate arrangement for accomplishing both ends would be beneficial and successful, because it was in accordance with nature; although the prejudiced and ignorant of the present generation would complain, and probably resist it. This principle of interference would go much farther; its only limits seem to me to be the boundaries of the real knowledge of nature: as long as the legislature enacts in conformity with nature, the result will be successful. At present, ignorance is too extensive and prevalent to authorise Parliament to venture far. From indications which already appear, however, I think it probable that the labouring classes will ere long recognise Phrenology, and the natural laws, as deeply interesting to themselves; and whenever their minds shall be opened to rational views of their own constitution as men, and their condition as members of society, I venture to predict that they will devote themselves to improvement, with a zeal and earnestness that in a few generations will change the aspect of their class.

The consequences of the present system of departing from the moral law, on the middle orders of the community, are in accordance with its effects on the lower. Uncertain gains—continual fluctuations in fortune—the absence of all reliance, in their pursuits, on moral and intellectual principles—a gambling spirit—an insatiable appetite for wealth—alternate extravagant joys of excessive prosperity and bitter miseries of disappointed ambition—render the lives of manufacturers and merchants, to too great an extent, scenes of mere vanity and vexation of spirit. As the *chief occupations* of the British nation, manufactures and commerce are disowned by reason; for, as now conducted, they imply the permanent degradation of the great mass of the people. They already constitute England's weakness; and, unless they shall be regulated by sounder views than those which at present prevail, they will involve their population in unspeakable misery. The oscillations of fortune, which almost the whole of the middle ranks of Britain experience, in consequence of the alternate depression and elevation of commerce and manufactures, are attended with extensive and severe individual suffering.

* Sketches, B. ii. Sk. 10.

Deep though often silent agonies pierce the heart, when ruin is seen stealing, by slow but certain steps, on a young and helpless family; the mental struggle often undermines the parent's health, and conducts him prematurely to the grave. No death can be imagined more painful than that which arises from a broken spirit, robbed of its treasures, disappointed in its ambition, and conscious of failure in the whole scheme of life. The best affections of the soul are lacerated and agonised at the prospect of leaving their dearest objects to struggle, without provision, in a cold and selfish world. Thousands of the middle ranks in Britain unfortunately experience these miseries in every passing year. Nothing is more essential to human happiness than fixed principles of action, on which we can rely for our present safety and future welfare; and the Creator's laws, when seen and followed, afford this support and delight to our faculties in the highest degree. It is one, not the least, of the punishments that overtake the middle classes for neglect of these laws, that they do not, as a permanent condition of mind, feel secure and internally at peace with themselves. In days of prosperity, they continue to fear adversity. They live in a constant struggle with fortune; and when the excitement of business has subsided, vacuity and craving are felt within. These proceed from the moral and intellectual faculties calling aloud for exercise; but, through ignorance of human nature, either pure idleness, gossiping conversation, fashionable amusements, or intoxicating liquors, are resorted to, and with these a vain attempt is made to fill up the void of life. I know that this class ardently desires a change that would remove the miseries here described, and will zealously co-operate in diffusing knowledge, by means of which alone it can be introduced.

The punishment which overtakes the higher classes is equally obvious. If they do not engage in some active pursuit, so as to give scope to their energies, they suffer the evils of ennui, morbid irritability, and excessive relaxation of the functions of mind and body; which carry in their train more suffering than even that which is entailed on the operatives by excessive labour. If they pursue ambition in the senate or the field, in literature or philosophy, their real success is in exact proportion to the approach which they make to observance of the supremacy of the moral sentiments and intellect. Sully, Franklin, and Washington, may be contrasted with Sheridan and Buonaparte, as illustrations. Sheridan and Napoleon did not, systematically, pursue objects sanctioned by the higher sentiments and intellect, as the end of their exertions; and no person who is a judge of human emotions can read the history of their lives, and consider what must have passed within their minds, without coming to the conclusion, that even in their most brilliant moments of external prosperity the canker was gnawing within, and that there was no moral relish of the present, or reliance on the future, but a mingled tumult of inferior propensities and intellect, carrying with it an habitual feeling of unsatisfied desires,

Let us now consider the effect of the moral law on NATIONAL prosperity.

If the Creator has constituted the world in harmony with the dictates of the moral sentiments, the highest prosperity of each particular nation should be thoroughly compatible with that of every other: that is to say, England, by sedulously cultivating her own soil, pursuing her own courses of industry, founding her internal institutions and her external relations on the principles of Benevolence, Veneration, and Justice, which imply abstinence from wars of aggression, from conquest, and from all selfish designs of commercial monopoly—would be in the highest condition of prosperity and enjoyment that nature admits of; and every step that she deviated from these principles, would carry an inevitable punishment along with it. The same statement may be made relative to France and every other nation. According to this principle, also, the Creator should have conferred on each nation such peculiar advantages of soil, climate, situation, or genius, as would enable it to carry on amicable intercourse with its fellow states, in a beneficial exchange of the products peculiar to each; so that the higher one nation rose in morality, intelligence, and riches, so much the more estimable and valuable it ought to become as a neighbour to all the surrounding states. This is so obviously the real constitution of nature, that proof of it would be superfluous.

England, however, as a nation, has set this law at absolute defiance. She has led the way in taking the propensities as her guides, in founding her laws and institutions on them, and in following them out in her practical conduct. England placed restrictions on trade, and carried them to the greatest height; she conquered colonies, and ruled them in the full spirit of selfishness; she encouraged lotteries, fostered the slave-trade, and carried paper money and the most avaricious spirit of manufacturing and speculating in commerce to their highest pitch; she defended corruption in Parliament, and distributed churches and seats on the bench of justice, on principles purely selfish; all in direct opposition to the supremacy of the moral law. If the world had been created in harmony with the predominance of the animal faculties, England would have been a most felicitous nation; but as the reverse is the case, it was natural that a severe national retribution should follow these departures from the Divine institutions—and grievous accordingly has been, and, I fear, will be, the punishment.

The principle which regulates national chastisement is, that the precise combination of faculties which leads to the transgression, carries in its train the punishment. Nations are under the moral and intellectual law, as well as individuals. A carter who half starves his horse, and unmercifully beats it, to supply, by the stimulus of pain, the vigour that nature intended to flow from abundance of food, may be supposed to practise this barbarity with impunity in this world, if he evade the eye of the police; but this is not the case. The hand of Providence reaches him by a direct punishment: he fails in his object; for blows cannot supply the vigour which, by the constitution of the horse, will flow only from sufficiency of wholesome food. In his conduct, he manifests excessive Acquisitiveness and Destructiveness, with deficient Benevolence, Veneration, Justice, and Intellect; and he cannot reverse this character, by merely averting his eyes and his hand from the horse. He carries these dispositions into the bosom of his family and into the company of his associates, and a variety of evil consequences ensue. The delights that spring from active moral sentiments and intellectual powers, are necessarily unknown to him; and the difference between these pleasures, and the sensations attendant on his moral and intellectual condition, are as great as between the external splendour of a king and the naked poverty of a beggar. It is true that he has never felt the enjoyment, and does not know the extent of his loss; but still the difference exists; *we* see it, and know that, as a direct consequence of this state of mind, he is excluded from a very great and exalted pleasure. Farther, his active animal faculties rouse the Combativeness, Destructiveness, Self-Esteem, Secretiveness, and Cautiousness, of his wife, children, and associates, against him, and they inflict on him animal punishment. He no doubt goes on to eat, drink, blaspheme, and abuse his horse, day after day, apparently as if Providence approved of his conduct; but he neither feels, nor can any one who attends to his condition believe him to feel, *happy*: he is uneasy, discontented, and conscious of being disliked—all which sensations are his punishment; and it is owing solely to his own grossness and ignorance that he does not connect it with his offence. Let us apply these remarks to nations.

England, under the impulses of excessively strong

Acquisitiveness, Self-Esteem, and Destructiveness, for a long time protected the slave-trade. During the periods of greatest sin in this respect, the same combination of faculties ought, according to the law which I am explaining, to be found working most vigorously in her other institutions, and producing punishment for that offence. There ought to be found in these periods a general spirit of domineering and rapacity in her public men, rendering them little mindful of the welfare of the people; injustice and harshness in her taxations and public laws; and a spirit of aggression and hostility towards other nations, provoking retaliation of her insults. And accordingly I have been informed, as a matter of fact, that while these measures of injustice were publicly patronised by the government, its servants vied with each other in injustice towards it, and its subjects dedicated their talents and enterprise towards corrupting its officers, and cheating it of its due. Every trader who was liable to excise or custom duties evaded the one-half of them, and did not feel that there was any disgrace in doing so. A gentleman, who was subject to the excise-laws fifty years ago, described to me the condition of his trade at that time. The excise-officers, he said, regarded it as an understood matter, that at least one-half of the goods manufactured were to be smuggled without being charged with duty; but then, said he, "they made us pay a moral and pecuniary penalty that was at once galling and debasing. We were constrained to ask them to our table at all meals, and place them at the head of it in our holiday parties: when they fell into debt, we were obliged to help them out of it; when they moved from one house to another, our servants and carts were in requisition to transport their effects. By way of keeping up discipline upon us, and also to make a show of duty, they chose every now and then to step in and detect us in a fraud, and get us fined: if we submitted quietly, they told us that they would make us amends by winking at another fraud, and they generally did so; but if our indignation rendered passive obedience impossible, and we gave utterance to our opinion of their character and conduct, they enforced the law on *us*, while they relaxed it on our neighbours; and these, being rivals in trade, undersold us in the market, carried away our customers, and ruined our business. Nor did the bondage end here. We could not smuggle without the aid of our servants; and as they could, on occasion of any offence given to themselves, carry information to the head-quarters of excise, we were slaves to them also, and were obliged tamely to submit to a degree of drunkenness and insolence that appears to me now perfectly intolerable. Farther, this evasion and oppression did us no good; for all the trade were alike, and we just sold our goods so much the cheaper the more duty we evaded; so that our individual success did not depend upon superior skill and superior morality, in making an excellent article at a moderate price, but upon superior capacity for fraud, meanness, sycophancy, and every possible baseness. Our lives were any thing but enviable. Conscience, although greatly blunted by practices that were universal and viewed as inevitable, still whispered that they were wrong; our self-respect very frequently revolted at the insults to which we were exposed; and there was a constant feeling of insecurity from the great extent to which we were dependent upon wretches whom we internally despised. When the government took a higher tone, and more principle and greater strictness in the collection of the duties were enforced, we thought ourselves ruined. The reverse, however, has been the case. The duties, no doubt, are now excessively burdensome from their amount; but that is their least evil. Were it possible to collect them from every trader with perfect equality, our independence would be complete, and our competition would be confined to superiority in morality and skill. Matters are much nearer this point now than they were fifty years ago; but still they would admit of considerable improvement." The same individual mentioned, that, in his youth, now seventy years ago, the civil liberty of the people of Scotland was held by a weak tenure. About 1760, he knew instances of soldiers being sent, in time of war, to the farm-houses, to carry off, by force, young men for the army: as this was against the law, they were accused of some imaginary offence, such as a trespass or an assault, which was proved by false witnesses; and the magistrate, perfectly aware of the farce and its object, threatened the victim with transportation to the colonies, as a felon, if he would not enlist—which, unprotected and overwhelmed by power and injustice, he was of course compelled to do.

If the same minute representation were given of other departments of private life, during the time of the greatest immoralities on the part of the government, we would find that this paltering with conscience and character in the national proceedings, tended to keep down the morality of the people, and fostered in them a rapacious and gambling spirit, to which many of the evils that have since overtaken us have owed their origin.

But we may take a more extensive view of the subject of national responsibility.

In the American war, Britain desired to gratify her Acquisitiveness and Self-Esteem, in opposition to Benevolence and Justice, at the expense of her trans-Atlantic colonies. This roused the animal resentment of the latter, and the propensities of the two nations came into collision; that is to say, they made war on each other—Britain, to support a dominion in direct hostility to the principles which regulate the moral government of the world, in the expectation of becoming rich and powerful by success in that enterprise; the Americans, to assert the supremacy of the higher sentiments, and to become free and independent. According to the principles which I am now unfolding, the greatest misfortune that could have befallen Britain would have been success, and the greatest advantage, failure in her attempt; and the result is now acknowledged to be in exact accordance with this view. If Britain had subdued the colonies in the American war, every one must see to what an extent her Self-Esteem, Acquisitiveness, and Destructiveness, would have been let loose upon them. This, in the first place, would have roused the animal faculties of the conquered party, and led them to give her all the annoyance in their power; and the expense of the fleets and armies requisite to repress this spirit, would have far counterbalanced all the profits she could have wrung out of the colonists by extortion and oppression. In the second place, the very exercise of these animal faculties by herself, in opposition to the moral sentiments, would have rendered her government at home an exact parallel of that of the carter in his own family. The same malevolent principles would have overflowed on her own subjects: the government would have felt uneasy, and the people rebellious, discontented, and unhappy; and the moral law would have been amply vindicated by the suffering which would have every where abounded. The consequences of her failure have been the reverse. America has sprung up into a great and moral nation, and actually contributes ten times more to the wealth of Britain, standing as she now does in her natural relation to this country, than she ever could have done as a discontented and oppressed colony. This advantage is reaped without any loss, anxiety, or expense: it flows from the divine institutions, and both nations profit by and rejoice under it. The moral and intellectual rivalry of America, instead of prolonging the ascendancy of the propensities in Britain, tends strongly to excite the moral sentiments in her people and government; and every day that we live, we are reaping the benefits of this improvement in wiser institutions, deliverance from endless abuses, and a higher and purer spirit pervading every department of the executive administration of the country. Britain, however, did not escape the penalty of her attempt at the infringement of the moral laws. The pages of her history, during the Ame-

rican war, are dark with suffering and gloom, and at this day we groan under the debt and difficulties then partly incurred.

If the world be constituted on the principle of the supremacy of the moral sentiments and intellect, the practice of one nation seeking riches and power, by conquering, devastating, or obstructing the prosperity of another, must be *essentially futile:* Being in opposition to the moral constitution of creation, it must occasion misery while in progress, and can lead to no result except the impoverishment and mortification of the people who pursue it. It is narrated that Themistocles told the Athenians that he had conceived a project which would be of the greatest advantage to Athens, but that the profoundest secrecy was necessary to ensure its success. They desired him to communicate it to Aristides, and promised, if he approved, to execute it. Themistocles took Aristides aside, and told him that he proposed, unawares, to burn the ships of the Spartans, then in profound peace with the Athenian state, and not expecting an attack; which would very much weaken the Spartan power. Aristides reported, that nothing could be more *advantageous*, but nothing more *unjust*, than the project in view. The people refused to hear or to execute it.* Here the *intellect* of Aristides appears to have viewed the execution of the scheme as *beneficial*, while his sentiment of Conscientiousness distinctly denounced it as *morally wrong;* and the question is, Whether external nature is so constituted, that the intellect can, *in any case*, possess *sufficient data* for inferring *actual benefit* from conduct which is *disowned and denounced by the moral sentiments?* It appears to me that it cannot. Let us trace the project of Themistocles to its results.

The inhabitants of Sparta possessed the faculties of Self-Esteem, Combativeness, Destructiveness, Intellect, Benevolence, and Conscientiousness. The proposed destruction of their ships, in time of profound peace, would have outraged the higher sentiments and intellect, and these would have kindled Combativeness and Destructiveness into the most intense activity. The greater the injustice of the act, the fiercer would the flame of opposition, retaliation, and revenge have glowed; and not only so, but the more grossly and wantonly the moral sentiments were outraged by the act, the higher would have been the class of minds which would have instinctively burned with the desire of revenge. The Athenians, then, by the very constitution of nature, would have been assailed by this fearful storm of moral indignation and animal resentment, rendered doubly terrible by the most virtuous and intelligent being converted into the most determined of their opponents. Turning to their own state again—only those individuals among themselves in whom intellect and moral sentiment were inferior to Acquisitiveness and Self-Esteem, which give rise to selfishness and the lust of power, could have cordially approved of the deed. The virtuous would have turned from the contemplation of it with shame and sorrow; and thus both the character and number of the defenders would have been diminished in the very ratio of the atrocity of the crime, while the power of the assailants, as we have seen, would, by that very circumstance, have been proportionally increased. It was impossible, therefore, that advantage to Athens could ultimately have resulted from such a flagrant act of iniquity; and the apparent opposition, in the judgment of Aristides, between the justice of the deed and the benefits to be expected from it, arose from his intellect not being sufficiently profound and comprehensive to grasp the whole springs which the enterprise would call into action, and to trace out the ultimate results. In point of fact, there would have been no opposition between the dictates of Conscientiousness, and those of an intellect that could accurately survey the whole causes and effects which the unjust enterprise would have set in motion—but quite the reverse; and the Athenians, in following the suggestions of the moral sentiment, actually adopted the most advantageous course which it was possible for them to pursue. The trite observation, that honesty is the best policy, thus becomes a profound philosophical maxim, when traced to its foundation in the constitution of human nature.

* Cicero de Officiis, lib. iii.

The national debt of Britain has been contracted chiefly in wars, originating in commercial jealousy and thirst for conquest; in short, under the suggestions of Combativeness, Destructiveness, Acquisitiveness, and Self-Esteem.* Did not our ancestors, therefore, impede their own prosperity and happiness, by engaging in these contests? and have any consequences of them reached us, except the burden of paying nearly thirty millions of taxes annually, as the price of the gratification of the propensities of our ignorant forefathers? Would a statesman, who believed in the doctrines maintained in this work, have recommended these wars *as essential to national prosperity?* If the twentieth part of the sums had been spent in effecting objects recognised by the moral sentiments—in instituting, for example, seminaries of education and penitentiaries, and in making roads, canals, and public granaries—how different would have been the present condition of the country!

After the American followed the French revolutionary war. Opinions are at present more divided upon this subject; but my view of it, offered with the greatest deference, is the following. When the French Revolution broke out, the domestic institutions of Britain were, to a considerable extent, founded and administered on principles in opposition to the supremacy of the moral sentiments. A clamour was raised by the nation for reform of abuses. If my leading principle be sound, every departure from the moral law, in nations as well as individuals, carries its punishment with it, from the hour of its commencement till its final cessation; and if Britain's institutions were then, to any extent, corrupt and defective, she could not have too speedily abandoned them, and adopted purer and loftier arrangements. Her government, however, clung to the suggestions of the propensities, and resisted every innovation. To divert the national mind from causing a revolution at home, they embarked in a war abroad, and, for a period of twenty-three years, let loose the propensities on France with headstrong fury and a fearful perseverance. France, no doubt, threatened the different nations of Europe with the most violent interference with their governments; a menace wholly unjustifiable, and one which called for resistance. But the rulers of that country were preparing their own destruction, in exact proportion to their departure from the moral law; and a statesman who knew and had confidence in the constitution of the world as now explained, could have listened to the storm with perfect composure, prepared to repel actual aggression; and could have left the exploding of French infatuation to the Ruler of the Universe, in unhesitating reliance on the efficacy of His laws. Britain preferred a war of aggression. If this conduct was in accordance with the dictates of the higher sen-

* Of 127 years, terminating in 1815, England spent 65 in war and 62 in peace. The war of 1688, after lasting nine years, and raising our expenditure in that period 36 millions, was ended by the treaty of Ryswick in 1697. Then came the war of the Spanish succession, which began in 1702, concluded in 1713, and absorbed 62½ millions of our money. Next was the Spanish war of 1739, settled finally at Aix-la-Chapelle in 1748, after costing us nearly 54 millions. Then came the seven years' war of 1756, which terminated with the treaty of Paris in 1763, and in course of which we spent 112 millions. The next was the American war of 1775, which lasted eight years. Our national expenditure in this war was 136 millions. The French revolutionary war began in 1793, lasted nine years, and exhibited an expenditure of 464 millions. The war against Buonaparte began in 1803, and ended in 1815: during these twelve years, we spent 1159 millions, 771 of which were raised by taxes, and 388 by loans. In the revolutionary war we borrowed 201 millions; in the American, 104 millions; in the seven years' war, 60 millions; in the Spanish war of 1739, 29 millions; in the war of the Spanish succession, 32½ millions; in the war of 1688, 20 millions. Total borrowed in the seven wars during 65 years, about 834 millions. In the same time, we raised by taxes 1189 millions; thus forming a total expenditure on war of TWO THOUSAND AND TWENTY-THREE MILLIONS OF POUNDS STERLING.—*Weekly Review.*

timents, we should now, like America, be reaping the reward of our obedience to the moral law, and plenty and rejoicing should flow down our streets like a stream. But mark the contrast. This island exhibits the spectacle of millions of men toiling to the extremity of human endurance, for a pittance scarcely sufficient to sustain life; weavers labouring for fourteen or sixteen hours a-day for eightpence, and frequently unable to procure work even on these terms; other artizans, exhausted almost to death by laborious drudgery, and who, if better recompensed, seek compensation and enjoyment in the grossest sensual debauchery, drunkenness, and gluttony; master-traders and manufacturers anxiously labouring for wealth, now gay in the fond hope that all their expectations will be realised, then sunk in despair by the ploughshare of ruin having passed over them; landholders and tenants now reaping unmeasured returns from their properties, then pining in penury amidst an overflow of every species of produce; the government cramped by an overwhelming debt and the prevalence of ignorance and selfishness on every side, so that it is impossible for it to follow with a bold step the most obvious dictates of reason and justice, by reason of the countless prejudices and imaginary interests which every where obstruct the path of improvement. This much more resembles punishment for transgression, than reward for obedience to the Divine laws.

If every man in Britain will turn his attention inwards, and reckon the pangs of disappointment which he has felt at the subversion of his own most darling schemes by unexpected turns of public events, or the deep inroads on his happiness which such misfortunes, overtaking his dearest relations and friends, have occasioned to him; the numberless little enjoyments in domestic life, which he is forced to deny himself, in consequence of the taxation with which they are loaded; the obstructions to the fair exercise of his industry and talents, presented by stamps, licences, excise-laws, customhouse duties, *et hoc genus omne;* he will discover the extent of responsibility attached by the Creator to national transgressions. From my own observation, I would say, that the miseries inflicted upon individuals and families, by fiscal prosecutions, founded on excise laws, stamp laws, post-office laws, &c., all originating in the necessity of providing for the national debt, are equal to those arising from some of the most extensive natural calamities. It is true, that few persons are prosecuted without having offended; but the evil consists in presenting men with enormous temptations to infringe mere financial regulations, not always in accordance with natural morality, and then inflicting ruinous penalties for transgression. Men have hitherto expected the punishment of their offences in the thunderbolt or the yawning earthquake, and have believed, that because the sea did not swallow them up, or the mountains fall upon them and crush them to atoms, heaven was taking no cognisance of their sins, while, in point of fact, an omnipotent, an all-just, and an all-wise GOD, had arranged, before they erred, an ample retribution in the very consequences of their transgressions. It is by looking to the *principles* in the mind, from which transgressions flow, and attending to their whole operations and results, that we discover the real theory of the Divine government. When men shall be instructed in the laws of creation, they will discriminate more accurately than heretofore between natural and factitious evils, and become less tolerant of the latter.

Since the foregoing observations were written, the great measure of Parliamentary Reform has been carried into effect in Britain and Ireland, and already considerable progress has been made in rectifying our national institutions. For the first time in the annals of the world, a nation has voluntarily contributed a large sum of money for the advancement of pure benevolence and justice. We have agreed to pay twenty millions sterling for the freedom of 800,000 human beings, whom our unprincipled forefathers had led into hopeless slavery. Sinecures have been abolished, monopolies destroyed, unmerited pensions checked, and taxation lightened; and there is a spirit abroad which demands the reform of all other abuses in church and state. The high gratification which I experience in contemplating these changes, arises from the perception that they have all the tendency to place the institutions of the country, and the administration of them, in harmony with the dictates of reason and the moral sentiments; the effect of which will infallibly be, not only to increase the physical enjoyments, but greatly to advance the moral, intellectual, and religious condition of the people. Example is the most powerful means of instruction, and it was in vain for a priesthood allied to the state to preach truth, justice, and benevolence to the people, while force, oppression, and many other species of abuse, were practised by our rulers and the church itself. No more effectual means of purifying the hearts of the people can be devised, than that of purifying all public institutions, and exhibiting justice and kindly affection as the animating motives of public men and national measures.

Of all national enormities, that of legalising the purchase of human beings, and conducting them into slavery, is probably the most atrocious and disgraceful; and Britain was long chargeable with this iniquity. The callous inhumanity, the intense selfishness, and the utter disregard of justice, implied in the practice, must have overflowed in numerous evils on the people of Britain themselves. Indeed, the state of wretched destitution in which the Irish peasantry are allowed to remain, and the unheeded increase of ignorance, poverty, and toil, in the manufacturing districts, appear to be legitimate fruits of the same spirit which patronised slavery, and these probably are preparing punishment for the nation, if repentance shall not speedily appear. Slavery, however, has now been abolished by Britain, and I hail this as the first step in a glorious career of moral legislation. The North Americans have been left behind by England, for once, in the march of Christian practice. In the United States, Negro slavery continues to deface the moral brightness of her legislative page; and on no subject does prejudice appear to be so inveterately powerful in that country as on slavery. Greatly as I respect the character of the Americans, it is impossible to approve of their treatment of the Negro population. The ancestors of the present American people stole, or acquired by an unprincipled purchase, the ancestors of the existing Negroes, and doomed them to a degrading bondage. This act was utterly at variance with the dictates of the moral sentiments, and of Christianity. Their posterity have retained the blacks in thraldom, treated them with contumely, and at this day regard them as scarcely human beings. This also is a grievous transgression of the natural and revealed law of moral duty. Evil and suffering must flow from these transgressions to the American people themselves, if a just God really governs the world.

The argument that the Negroes are incapable of civilisation and freedom, is prematurely urged, and not relevant although it were based upon fact. The Negro head presents great varieties of moral and intellectual developement, and I have seen several which appeared fully equal to the discharge of the ordinary duties of civilised men. But the race has never received justice from its European and American masters: and until its treatment shall have become moral, its capabilities cannot be fairly estimated, and the judgment against it is therefore premature.* But,

* The reader will find, in the 46th number of Chambers's Edinburgh Journal (15th Dec. 1832) a very interesting account of a Negro of high moral and intellectual qualities, who lived for a considerable time near Hawick. Another Negro, called Eustache, of whose head there is a cast in the Phrenological Society's collection, displayed a degree of shrewdness and disinterested benevolence very rare even in Europe; and his head, while it presents an excellent anterior developement, is more prominent at the organ of Benevolence than any other head which has fallen under my observation. An account of Eustache will be found in the

whatever be the capabilities of the Negroes, it was a heinous moral transgression to transport them, by violent means, from the region where they had been placed by a wise and benevolent God, and to plant them in a new soil, and amidst institutions, for which they were never intended; and the punishment of this offence will rather be aggravated than averted, by losing sight of the source of the transgression, and charging the consequences of it on the Negroes, as if they were to blame for their alleged incapacity to glide gracefully into the ranks of American civilisation. The Negroes must either be improved by culture and intermarriage with the white race, or retransferred to their native climate, before America can escape from the hands of divine justice. I am not sufficiently acquainted with the details of American social life, to be able to point out the practical form in which the punishment is inflicted; but if there be truth in the principles now expounded, no doubt can be entertained of its existence.

The alternative of incorporating the Negroes, by intermarriage, with the European race, appears revolting to the feelings of the latter; while they also declare it to be impossible to retransport the blacks to Africa, on account of their overwhelming numbers. There is much force in both of these objections, but the following considerations have still greater weight:—the white race is exclusively to blame for the origin of the evil, and for all its consequences; the natural laws never relax in their operation; and hence the existing evils will go on augmenting until a remedy be adopted, and this will become more painful the longer it is delayed. If the present state of things shall be continued for a century, it is probable that it will end in a war of extermination between the black and the white population, or in an attempt by the blacks to conquer and exclusively possess one or more of the southern states of the Union as an independent kingdom for themselves.

At the time when I write these pages, the planters of Jamaica and of the other West India islands are complaining of the ruinous consequences to them of Negro emancipation, and blaming the British government for having abrogated slavery. These men apparently do not believe in the moral government of the world, or they do not know the manner in which it is administered. If they did, they would acknowledge that those who sow the wind have no right to complain when they reap the whirlwind. The permanence of Negro slavery in the West Indies was impossible; because it was a system of gross injustice, cruelty, and oppression, and no such social fabric can permanently endure. Its fruits have long been poisonous and bitter, and the planters are suffering the penalty of having reared them. They ought, however, to thank the justice and repentant generosity of the mother country, which, by purchasing the freedom of the slaves, has so greatly mitigated their punishment; for they may rest assured, that the annoyances now suffered are light and transient compared with the calamities which would have befallen them had slavery been prolonged until it had wrought out its own termination. Another generation will probably see and acknowledge this truth. But, in the meantime, I remark, that, be the sufferings of the West India planters at present what they may, they, as the representatives of the original transgressors, are justly sustaining the penalty; and, in their instance, as in that of a patient undergoing a severe operation to escape from a dangerous disease, delay would only have protracted their affliction, and augmented the ultimate pain and the danger of the remedy.

The Spaniards, under the influence of selfish rapacity and ambition, conquered South America, inflicted upon its wretched inhabitants the most atrocious cruelties, and continued, for 300 years, to weigh like a moral incubus upon that quarter of the globe. The punishment is now endured. By the laws of the Creator, nations must obey the moral law to be happy; that is, to cultivate the arts of peace and to be industrious, upright, intelligent, pious, and humane. The reward of such conduct is individual happiness, and national greatness and glory: there shall then be none to make them afraid. The Spaniards disobeyed all these laws in the conquest of America; they looked to rapine and foreign gold, and not to industry, for wealth; and this fostered avarice and pride in the government, baseness in the nobles, and indolence, ignorance, and mental depravity in the people—it led them to imagine happiness to consist, not in the exercise of the moral and intellectual powers, but in the gratification of all the inferior, to the outrage of the higher feelings. Intellectual cultivation was utterly neglected, the sentiments ran astray into bigotry and superstition, and the propensities acquired a fearful ascendancy. These causes made them the prey of internal discord and foreign invaders, and Spain at this moment suffers an awful retribution.

Cowper recognises these principles of divine government as to nations, and has embodied them in the following powerful verses:—

The hand that slew till it could slay no more,
Was glued to the sword-hilt with Indian gore.
Their prince, as justly seated on his throne
As vain imperial Philip on his own,
Tricked out of all his royalty by art,
That stripped him bare, and broke his honest heart,
Died by the sentence of a shaven priest,
For scorning what they taught him to detest.
How dark the veil, that intercepts the blaze
Of Heaven's mysterious purposes and ways!
God stood not, though he seemed to stand, aloof;
And at this hour the conqueror feels the proof:
The wreath he won drew down an instant curse,
The fretting plague is in the public purse,
The cankered spoil corrodes the pining state,
Starved by that indolence their minds create.
Oh! could their ancient Incas rise again,
How would they take up Israel's taunting strain!
Art *thou* too fallen, Iberia? Do we see
The robber and the murd'rer weak as we?
Thou that hast wasted earth, and dared despise
Alike the wrath and mercy of the skies,
Thy pomp is in the grave, thy glory laid
Low in the pits thine avarice has made.
We come with joy from our eternal rest,
To see th' oppressor in his turn oppressed.
Art *thou* the god, the thunder of whose hand
Rolled over all our desolated land,
Shook principalities and kingdoms down,
And made the mountains tremble at his frown?
The sword shall light upon thy boasted powers,
And waste them, as the sword has wasted ours.
'Tis thus Omnipotence his law fulfils,
And Vengeance executes what Justice wills.

Cowper's Poems.—Charity.

The question has frequently been discussed, whether the civilisation of savages may be more easily effected by forcible or by pacific measures. By one class of reasoners, including the late excellent Sir Stamford Raffles, it is contended that civilised nations may, in their endeavours to improve and enlighten savage tribes, employ with advantage the superior power with which they are armed: but, on the principle of the supremacy of the moral sentiments, we are entitled to conclude, *a priori*, that such a method of proceeding would be found ineffectual. The employment of compulsion is calculated to rouse chiefly the propensities, while the very essence of civilisation is the predominance of the moral and intellectual powers.* This subject is ably handled by a very

Phrenological Journal, vol. ix. p. 134, and *Journal de la Société Phrénologique de Paris*, April 1835. Mr Lawrence has collected in the eighth chapter of his admirable Lectures on Physiology, Zoology, and the Natural History of Man, a great variety of facts tending to prove that the Negroes, though morally and intellectually inferior to the white race, are by no means near the bottom of the scale of humanity; and he expresses the well-grounded opinion, "that of the dark-coloured people none have distinguished themselves by stronger proofs of capacity for literary and scientific investigation, and, consequently, that none approach more nearly than the Negro to the polished nations of the globe."

* See Observations on the Phrenological Standard of Civilisation, Phren. Jour. ix. 360.

acute anonymous writer in the Library of Entertaining Knowledge.* History, he remarks, does not warrant the opinion that any nation has ever been civilised by the sword; and the improvement which followed the Roman conquests appears to have been brought about, not by compulsion, but by the exhibition of "a standard and pattern of comfort and elegance which the barbarians could hardly fail first to admire, and afterwards to imitate." The Romans do not seem to have violently interfered with the established customs and institutions of conquered nations. "The inferior animals," says the excellent writer alluded to, "can only be reduced to obedience by constraint; but men are formed to be tamed by other methods. Example, persuasion, instruction, are the only means we may lawfully make use of to wean savages from their barbarism; and they are also the best fitted to accomplish that object. It is not even pretended that an exercise of what are falsely called the rights of conquest for such a purpose would have any chance of being successful till after the lapse of at least two or three generations—till the conquered people, in fact, have become mixed and amalgamated with their conquerors, or, from not having been permitted to follow the customs of their ancestors, have actually forgotten them. In some cases the natives have been absolutely extirpated before this has happened, as was the case almost universally on the South American continent, and of which we have a more remarkable instance in the attempts of the Spanish Jesuits to christianise by main force the inhabitants of the Marianas, which were terminated in a few years by the almost entire depopulation of that beautiful archipelago."†

In surveying the present aspect of Europe, we perceive astonishing improvements achieved in physical science. How much is implied in the mere names of the steam-engine, power-looms, rail-roads, steam-boats, canals, and gas-lights; and yet of how much misery are several of these inventions at present the direct sources, in consequence of being almost exclusively dedicated to the gratification of the propensities! The leading purpose to which the steam-engine in almost all its forms of application is devoted, is the accumulation of wealth, or the gratification of Acquisitiveness and Self-Esteem; and few have proposed to lessen, by its means, the hours of toil of the lower orders of society, so as to afford them opportunity and leisure for the cultivation of their moral and intellectual faculties, and thereby to enable them to render a more perfect obedience to the Creator's institutions. Physical has far outstripped moral science; and it appears to me, that, unless mankind shall have their eyes opened to the real constitution of the world, and be at length induced to regulate their conduct in harmony with the laws of the Creator, their future physical discoveries will tend only to deepen their wretchedness. Intellect, acting as the ministering servant of the propensities, will lead them only farther astray. The science of man's whole nature, animal, moral, and intellectual, was never more required to guide him than at present, when he seems to wield a giant's power, but in the application of it to display the ignorant selfishness, wilfulness, and absurdity of an overgrown child. History has not yielded half her fruits, and cannot yield them until mankind shall possess a true theory of their own nature.

Many persons believe that they discover evidence against the moral government of the world, in the success of individuals not greatly gifted with moral and intellectual qualities, in attaining to great wealth, rank, and social consideration, while men of far superior merit remain in obscurity and poverty. But the solution of this difficulty is to be found in the consideration, that success in society depends on the possession, in an ample degree, of the qualities which society needs and appreciates, and that these bear reference to the state in which society finds itself at the time when the observation is made. In the savage and barbarous conditions, bodily strength, courage, fortitude, and skill in war, lead a man to the highest honours; in a society like that of modern England, commercial or manufacturing industry may crown an individual with riches, and great talents of debate may carry him to the summit of political ambition. In proportion as society advances in moral and intellectual acquirements, it will make larger demands for similar qualities in its favourites. The reality of the moral government of the world appears from the degree of happiness which individuals and society enjoy in these different states. If unprincipled commercial and political adventurers were happy in proportion to their apparent success; or if nations were as prosperous under the dominion of reckless warriors as under that of benevolent and enlightened rulers; or if the individuals who compose a nation enjoyed as much serenity and joy of mind when they advanced the bold, selfish, and unprincipled to places of trust and power, as when they chose the upright, benevolent, and pious —the dominion of a just Creator might well be doubted. But the facts are the reverse of these.

* The New Zealanders, p. 402-410.

† "See the narrative of these extraordinary proceedings, though related by a pen in the interest of their authors, in Father Legobien's *Histoire des Iles Mariannes*."

CHAPTER VI.

ON PUNISHMENT.

I. *On punishment as inflicted under the natural laws*—Laws may be instituted either for the selfish gratification of the legislator, or for the benefit of the governed—Gessler's order to the Swiss, an instance of the former; the natural laws of God, of the latter—The object of punishment for disobedience to the divine laws is to arrest the offender, and save him from greater miseries—Beneficial effects of this arrangement—Laws of combustion; advantages attending them, and mode in which man is enabled to enjoy these and escape from the danger to which he is subjected by fire—Utility of pain—God's punishments in this world have for their object to bring the sufferers back to obedience for their own welfare, and to terminate their misery by death when the error is irreparable—Punishments mutually inflicted by the lower animals—Punishments mutually inflicted by men—Criminal laws hitherto framed on the principle of animal resentment—Inefficacy of these, from overlooking the causes of crime, and leaving them to operate with unabated energy after the infliction—Moral in preference to animal retribution, suggested as a mode of treatment—Every crime proceeds from an abuse of some faculty or other—The question, Whence originates the tendency to abuse? answered by the aid of Phrenology—Crime extinguishable only by removing its causes—The effects of animal and moral punishment compared—Remarks on the natural distinction between right and wrong—The objections considered, That, according to the proposed moral system of treating offenders, punishment would be abrogated and crime encouraged; and That the author's views on this subject are Utopian, and, in the present state of society, impracticable.——II. *Moral advantages of punishment*—The mental improvement of man not the primary object for which suffering is sent—Errors of some religious sects adverted to—Bishop Butler teaches, more rationally, that a large proportion of our sufferings is the result of our own misconduct—The objection, that punishments are often disproportionately severe, considered—Recapitulation of the advantages flowing from obedience, and misfortunes from disobedience, to the moral laws.

SECT. I.—ON PUNISHMENT AS INFLICTED UNDER THE NATURAL LAWS.

THE last point connected with the Natural Laws, which I consider, is the principle on which punishment for infringement of them is inflicted in this world.

Every law presupposes a superior, who establishes it, and requires obedience to its dictates. The superior may be supposed to act under the dictates of the animal faculties, or under those of the moral sentiments. The former being selfish, whatever they desire is for selfish gratification. Hence laws instituted by a superior inspired by the animal powers, would have for their leading object the individual advantage the law-giver, with no systematic regard to the en-

joyment or welfare of those who were called on to obey. The moral sentiments, on the other hand, are altogether generous, disinterested, and just; they delight in the happiness of others, and do not seek individual advantage as their supreme end. Laws instituted by a law-giver inspired by them, would have for their grand object the advantage and enjoyment of those who were required to yield obedience. The story of William Tell will illustrate my meaning. Gessler, an Austrian governor of the canton of Uri, placed his hat upon a pole, and required the Swiss peasants to pay the same honours to it that were due to himself. The object of this requisition was obviously the gratification of the Austrian's Self-Esteem, in witnessing the humiliation of the Swiss. It was framed without the least regard to their happiness; because such abject slavery could gratify no faculty in their minds, and ameliorate no principle of their nature, but, on the contrary, was calculated to cause the greatest pain to their feelings.

Before punishment for breaking such a law as this could be justly inflicted, it would be indispensably necessary that the people called on to obey it should not only possess the power of doing so, but likewise be benefited by their obedience. If it could be established, that, by the very constitution of their minds, it was impossible for the Swiss to reverence the hat of the tyrant, and that, if they had pretended to do so, they would have manifested only baseness and hypocrisy—then the law was unjust, and all punishment for disobedience was pure tyranny and oppression on the part of the governor. In punishing, he employed Destructiveness as a means of procuring gratification to his own Self-Esteem.

Let us imagine, on the other hand, a law promulgated by a sovereign whose sole motive was the happiness of his subjects, and that the edict was, Thou shalt not steal. If the law-giver were placed far above the reach of theft by his subjects, and if respect to each other's rights were indispensable to the welfare of his people themselves, then it is obvious, that, so far as he was personally concerned, their stealing or not stealing would be of no importance to him, while it would be of the highest moment to themselves. Let us suppose, then, that, in order to prevent the evils which the subjects would bring upon themselves by stealing, he were to add as a penalty, that every man who stole should be locked up, and instructed in his duty until he clearly felt the necessity of abstaining from theft—the justice and benevolence of this sentence would rest securely on the circumstance, that it was in the highest degree advantageous, both to society at large and to the offender himself. Suppose that the latter was born with large organs of Acquisitiveness and Secretiveness, and deficient Conscientiousness, and that when he committed the offence he really could not help stealing—still there would be no cruelty and no injustice in locking him up and instructing him in moral duty until he learned to abstain from theft; because, if this were not done, and if all men were to follow his example and only steal, the human race, and he, as a member of it, would necessarily starve and become extinct.

Now, the Creator's natural laws, so far as I have been able to perceive them, are instituted solely on the latter principle; that is to say, there is not the slightest indication of the object of any of the arrangements of creation being to gratify an inferior feeling in the Creator himself. No well-constituted mind, indeed, could conceive Him commanding beings whom He called into existence, and whom He could annihilate in a moment, to do any act of homage which had reference merely to the acknowledgment of his authority, solely for His personal gratification, and without regard to their own welfare and enjoyment. We cannot, in short, without absolute outrage to the moral sentiments and intellect, imagine Him doing any thing analogous to the act of the Swiss governor—placing an emblem of His authority on high, and requiring His creatures to obey it, merely to gratify Himself by their homage, to their own disparagement and distress. Accordingly, every natural law, so far as I can discover, appears clearly instituted for the purpose of adding to the enjoyment of the creatures who are called on to obey it. The object of the punishment inflicted for disobedience is to arrest the offender in his departure from the laws; which departure, if permitted to proceed to its natural termination, would involve him in tenfold greater miseries. This arrangement greatly promotes the activity of the faculties; and, active faculties being fountains of pleasure, the penalties themselves become benevolent and just. For example,

Under one of the physical laws, all *organic* bodies are liable to combustion. Timber, coal, oils, and animal substances, when heated to a certain extent, catch fire and burn: And the question occurs, Was this quality bestowed on them for a benevolent purpose or not? Let us look to the advantages attending it. By means of fire we obtain warmth in cold latitudes, and light after the sun has set: it enables us to cook, thereby rendering our food more wholesome and savoury; and by its aid we soften and fuse the metals. I need go no farther; every one will acknowledge, that, by the law under which organic bodies are liable to combustion, countless benefits are conferred on the human race.

The human body itself, however, is organised, and in consequence is subject to this law; so that, if placed in a great fire, it is utterly dissipated in a few minutes. Some years ago, a woman, in a fit of insanity, threw herself into an iron smelting furnace, in full blaze: she was observed by a man working on the spot, who instantly put off the steam-engine that was working the bellows, and came to take her out; but he then saw only a small black speck on the surface of the fire, and in a few minutes more even it had disappeared. The effect of a less degree of heat is to disorganise the texture of the body. What mode, then, has the Creator followed, to preserve men from the danger to which they are subjected by fire? He has caused their nerves to communicate sensations from heat, agreeable while the temperature is such as to benefit the body; slightly uneasy, when it becomes so high as to be in some measure hurtful; positively painful when the heat approaches that degree at which it would seriously injure the organised system; and horribly agonising whenever it becomes so elevated as to destroy the organs. The principle of all this is very obviously benevolent. Combustion brings us innumerable advantages; and when we place ourselves in *accordance* with the law intended to regulate our relation to it, we reap *unmingled benefits and pleasure.* But we are in danger from its excessive action; and so kind is the Creator, that he does not trust to the guardianship of our own Cautiousness and intellect alone to protect us from infringement, but has established a monitor in every sensitive nerve, whose admonitions increase in intensity through imperceptible gradations, exquisitely adjusted to the degrees of danger, till at last, in pressing circumstances, they urge in a note so clamant as to excite the whole physical and mental energy of the offender to withdraw him from the impending destruction.

Many persons imagine that this mode of admonition would be altogether unexceptionable if the offender always possessed the power to avoid incurring it, but that, on the other hand, when a child, or an aged person, stumbles into the fire, through mere lack of bodily strength to keep out of it, it cannot be just and benevolent to visit him with the tortures that follow from burning. This, however, is a short-sighted objection. If, to remedy the evil supposed, the law of combustion were altogether suspended as to children and old men, so that, as far as they were concerned, fire did not exist, then they would be deprived of the light, warmth, and other benefits which it affords. This would be an awful deprivation; for warmth is more than commonly grateful and neces-

sary to them, in consequence of the very feebleness of their frames. Or we may suppose that their nerves were constituted so as to feel no pain from burning—an arrangement which would effectually guarantee them against the tortures of falling in the fire: But, in the *first* place, nerves feel pain under the same law that enables them to feel pleasure—the agony of burning arises altogether from an excessive degree of the stimulus of heat, which, when moderate, is genial and pleasant; and, *secondly*, if no pain were felt when in the fire, the child and old man would have no urgent motive to get out of it. Under the present system, the pain would excite an intense desire to escape; it would increase their muscular energy, or make them roar aloud for assistance; in short, it would compel them to get out of the fire, by some means or other, and thus if possible escape from death. As they fell into the fire in consequence of a deficiency of mental or bodily power to keep out of it, the conclusion is obvious, that if no pain attended their contact with the flames, they might repose there as contentedly as on a bed of down; and the fond mother might find a black cinder for her child, or a pious daughter a half-charred mass of bones for her father, although he had been only in an adjoining apartment, the slightest cry or groan from which would have brought her to arrest the calamity.

In this instance, then, the law of combustion under which punishment is inflicted, is both benevolent and just, even when pain visits persons who were incapable of avoiding the offence; because the object of the law is the welfare of these very unconscious offenders themselves, so that if it were subverted, they would be greatly injured, and would loudly petition for its re-establishment.

Let us take another example. Opium, by its inherent qualities, and the relationship established by the Creator between it and the nervous system of man, operates, if taken in one proportion, as a stimulant; if the proportion is increased, it becomes a sedative; and if still increased, it paralyses the nervous system altogether, and death ensues. Now, it is generally admitted that there is no want of benevolence and justice, when a full-grown and intelligent man loses his life, if he deliberately swallow an overdose of opium, knowing its qualities and their effects; because, it is said, he exposed himself to these effects voluntarily: When, however, an ignorant child, groping about for something to eat and drink, in order to satisfy the craving of its natural curiosity and appetite, stumbles on a phial of laudanum, intended for the use of some sick relative, pulls the cork, drinks, and dies—many persons imagine that it is very difficult to discover justice and benevolence in this severe, and, as they say, unmerited catastrophe.

But the real view of the law under which both events happen, appears to me to be this. The inherent qualities of opium, and its relationship to the nervous system, are very obviously benevolent, and are the sources of manifest advantages to man. If, in order to avoid every chance of accidents, opium, in so far as children are concerned, were deprived of its qualities, so that their nervous system received no greater impression from it than from tepid water, it is clear that they would be decidedly sufferers. The greatest advantages of the drug are derived from its *scale of efficiency*, by which it can be made to produce, first a stimulating effect, then a gently sedative, and afterwards a higher and a higher degree of sedative influence, until, by insensible degrees, absolute paralysis may ensue. A dose which kills in health will cure in disease; and, if its range were limited to effects beneficial in health, its advantages in disease, arising from higher action, would necessarily be lost—so that children, by the supposed arrangement, would be cut off from its beneficial administration. The parallel between it and the law of combustion is complete. If we could never have commanded a degree of heat higher than that which gently warms the human body, we must have wanted all the advantages now derivable from the intense heats used in cooking, baking, and manufacturing; if we could never have commanded more than the gently stimulant and sedative effects of opium on the body in a state of health, we should necessarily have been deprived of its powerful remedial action in cases of disease. The proper question then is, Whether is it more benevolent and just that children, after they have been exposed, from whatever cause, to that high degree of its influence, which, although beneficial in disease, is adverse to the healthy action of the nervous system, should be preserved alive in this miserable condition, or that life should at once be terminated? It appears obviously advantageous to the offender himself, that death should relieve him from the unhappy condition into which his organised frame has been brought by the abuse of this substance, calculated, when discreetly used, to confer on him no mean advantages.

The principle that Divine punishments are founded in benevolence, even to the sufferer, is strongly elucidated in the case of the organic laws. When inflammation, for example, has seized any vital organ, if there were no pain, there would be no intimation that an organic law had been infringed, the disease would proceed quietly in its progress, and death would ensue without the least previous warning. The pain attending an acute disease, therefore, is obviously instituted to warn the sufferer, by the most forcible of all admonitions, to return to obedience to the law which he has infringed. In the case of a broken limb, or a deep cut, the principle becomes exceedingly obvious. The bone of the leg will re-unite, if the broken edges are preserved in close contact; and the subsequent serviceable condition of the limb will depend much upon the degree of exactness with which they have been made to re-approach and been preserved in their natural position. Now, in the *first* place, the pain attending a broken limb gives a most peremptory intimation that an injury has been sustained; *secondly*, it excites the individual most forcibly to the reparation of it; and, *thirdly*, as it recurs with a degree of violence exactly proportioned to the disturbance of the parts, after the healing process has commenced it officiates like a sentinel with a drawn sword, compelling the patient to avoid every thing that may impede his recovery. The same observations apply to a flesh-wound. The pain serves to intimate the injury, and to excite to its removal. The dissevered edges of the skin, nerves, and muscles, if skilfully made to re-approach, will, by the organic law, re-unite if left in repose. An accession of pain follows every disturbance of their condition, when in the process of healing; and it serves, therefore, as a most effectual and benevolent guardian of the welfare of the individual. If these views be correct, what person would dispense with the pain which attends the infringement of the organic laws, although such a boon were offered for his acceptance? It is obvious, that, if he possessed the least glimmering of understanding, he would thank the Creator for the institution, and beg in mercy to be allowed the benefits attending it; especially if he considered the fact, that, after the possibility of recovery ceases, death steps in to terminate the suffering.

The point to which I request the reader's special attention is, that the power of the individual to avoid, or not to avoid, the infringement of the law in the particular instance which brings the punishment, is not an indispensable circumstance in rendering the infliction benevolent and just. The infliction is approved of by the moral sentiments and intellect, because the law, in its legitimate operation, is calculated altogether for the advantage of the subject; and because the punishment has no object but *to bring him back to obedience for his own welfare, or to terminate his sufferings when he has erred too widely to return.*

Let us now inquire whether the same principle prevails in regard to the infringement of the Moral and Intellectual Laws. This investigation is attended

with great difficulty; and it may be best elucidated by attending, in the first place, to the liability to punishment for their actions, under which the lower animals are placed.

The physical and organic laws affect the inferior creatures in the same manner as they regulate man, so that nothing need be said on these points. The animals are endowed with propensities impelling them to act, and a certain degree of intellect enabling them to perceive the consequences of their actions. These faculties prompt them to inflict punishment on each other for infringement of their rights, although they possess no sentiments pointing out the moral guilt of such conduct. For example, dogs possess Acquisitiveness, which gives them the sense of property: when one is in possession of a bone, and another attempts to steal it, this act instantly excites the Combativeness and Destructiveness of the proprietor of the bone, and he proceeds to worry the assailant. Or a cock, on a dunghill, finds a rival intruding on his domain, and under the instinctive inspiration of Combativeness and offended Self-Esteem, he attacks him and drives him off. I call this inflicting *animal punishment*. In these cases it is not supposed that the aggressors possess moral faculties, intimating that their trespass is wrong, or free will by which they could avoid it. I view them as inspired by their propensities, and rushing blindly to gratification. Nevertheless, in the effect which the aggression produces on the propensities of the animal assailed, we perceive an arrangement instituted by the Creator for checking outrage, and arresting its progress.

Before the penalty inflicted could be viewed by man as just in such cases, it would be necessary to perceive that it was instituted for the benefit of the aggressors themselves; and, in truth, this is clearly observed to be the case. If all dogs neglected to seek bones, and dedicated themselves solely to stealing; and if cocks, in general, deserted their own domains, and gave themselves up only to felonious inroads on each other's territories; it is evident that the races of these animals would soon become extinct. It follows also, that any individual among them who should habitually abandon himself to such transgressions, would speedily lose his life by violence or starvation. If, then, it is beneficial for the race, and also for the individual offender himself, in these instances, to be arrested in his progress, his chastisement is decidedly benevolent and just.

It is interesting to observe, that various provisions are made under the animal law for bringing about substantial justice, even in creatures destitute of the sentiment of Conscientiousness. The lower animals make perfectly sure of punishing only the real offender; for he must be caught in the act, otherwise he is not visited by their resentment. In the next place, it appears to be the general law of animal nature, that unless the offender has carried his inroad to an extreme extent, the punishment is relaxed the moment he desists; that is to say, the master of the bone or dunghill is generally satisfied with simple defence, and rarely abandons his treasure to pursue the offender for the sake of mere revenge.

Farther, the animals, in inflicting punishment, make no inquiry into the *cause of the offence*. With them it affords no alleviation that the aggressor is himself in a state of the greatest destitution, or that his appetite is irresistible; neither do they concern themselves about his fate after they have made him undergo the penalty. He may die of the wounds they have inflicted upon him, or of absolute starvation, before their eyes, without their enjoyment being in the least disturbed. This arises from their faculties consisting entirely of those powers which regard only self. They are deficient in the faculties which inquire into causes and trace consequences; and in the moral sentiments, which desire, with a disinterested affection, the welfare of other beings.

Nevertheless, the punishment which they inflict is in itself just, and serves, as we have seen, a decidedly beneficial end. Let us now direct our attention to man.

Man possesses the same animal propensities as those of the lower creatures, and, under their instigation, he inflicts punishment on principles precisely analogous to those under which they chastise. Indeed it is curious to remark, that hitherto the criminal laws, even of the most civilised nations, have been framed on the principles of animal punishment exclusively. A thief, for example, breaks into a dwelling-house and steals. The reflecting faculties are employed to discover the offender, and find evidence of the offence. Judges and juries assemble to determine whether the evidence is sufficient; and if they find it to be so, the offender is ordered to be banished, imprisoned, or hanged. We are apt to imagine that there is something moral in the trial. But the sole object of it is to ascertain that a crime has been committed, and that the accused is the real offender. The dog and cock make equally certain of both points; because they never punish except when the individual is caught in the offence. Guilt being ascertained, and the offender identified, the dog shakes and worries him, and then lets him go; while man scourges his back, or makes him mount the steps of a tread-mill, and then turns him adrift. If the offender has been very presumptuous and pertinacious in his aggression, the dog sometimes, although rarely, throttles him outright: and man, in similar circumstances, very generally strangles him with a rope, or cuts off his head. The dog, in his proceeding, makes no inquiry into the causes which led to the crime, or into the consequences, upon the offender, of the punishment which he inflicts. In this also he is imitated by the human race. Man inflicts his vengeance with as little inquiry into the causes which led to the offence—and, except when he puts him to death, he turns the culprit adrift upon the world after he has undergone his punishment, with as little concern about what shall next befall him as is shown by his canine prototype. The dog acts in this manner, because he is inspired by animal propensities, and higher faculties have been denied him. Man imitates him, because he too has received animal faculties—and because, although he possesses, in addition to them, moral sentiments and reflecting intellect, he has not yet discovered the practical application of these to the subject of criminal legislation.

The animal punishment is not without advantage even in the case of man, although it is far short, in this respect, of what he might obtain by following the guidance of his moral sentiments and enlightened intellect. Man as a mere animal could not exist in society, unless some check were instituted against abuses of the propensities; and hence it is quite obvious that animal vengeance, rude as it is, carries with it results beneficial even to the offender, except where it puts him to death—a degree of punishment which, as we have seen, the lower animals rarely inflict on each other of the same species. Unless the outrages of Destructiveness, Acquisitiveness, Self-Esteem, and the other animal faculties, were checked, human society would be dissolved, and by that result the offenders themselves would suffer more grievous calamities than under any moderate form of animal castigation.

The world is arranged, in so far as regards the lower creatures, with a wise relation to the faculties bestowed on them. Accordingly, animal resentment is really effective in their case. In consequence of their not possessing reflecting faculties, they are incapable of forming deep or extensive schemes for mutual aggression, and are not led to speculate on the chances of escaping detection in their misdeeds. Their offences are limited to casual overflowings of their propensities when excited by momentary temptation; which are checked by counter overflowings of other propensities, momentarily excited in the animals aggrieved.

In regard to man, however, the world has been arranged on the principle of supremacy of the moral sentiments and intellect; and, in consequence, animal retribution is not equally effectual in his case. For example, a human offender employs his intellect in

devising means to enable him to escape detection, or to defend himself against punishment; and hence, although he sees punishment staring him in the face, his hope deludes him into the belief that he may escape it. Farther, if the real cause of human offences be excessive size and activity of the organs of the animal propensities, it follows that mere punishment cannot put a stop to crime; because it *overlooks the cause, and leaves it to operate with unabated energy after the infliction has been endured.* The history of the world, accordingly, presents us with a regular succession of crimes and punishments, and at present the series appears to be as far removed from a termination as at any previous period of the annals of the race.

If the world, in regard to man, has been arranged on the principle of supremacy of the moral sentiments and intellect, we might expect better success were *moral retribution*, of which I now proceed to treat, resorted to.

The motive which prompts the dog to worry, and the cock to peck and spur his assailant, is, as we have seen, mere animal resentment. His propensities are disagreeably affected, and Combativeness and Destructiveness instinctively start into activity to repel the aggression. The animal resentment of man is precisely analogous. A thief is odious to Acquisitiveness, because he robs it of its treasures; a murderer is offensive to our feelings, because he extinguishes life. And, these faculties being offended, Combativeness and Destructiveness rush to their aid in man while under the animal dominion, as instinctively as in the dog—and punish the offender on principles, and in a way, exactly similar.

The case is different with the proper human faculties. Benevolence, contemplating outrage and murder, disapproves of them because they are hostile to its inherent constitution, and because they occasion calamities to those who are their objects, and misery to the perpetrators themselves. Conscientiousness is pained by the perception of theft, because its very nature revolts at every infringement of right, and because justice is essential to the welfare of all intelligent beings. Veneration is offended at reckless insult and indignity, because its desire is to respect the intelligent creatures of the God whom it adores, believing that they are all the objects of his love. When crime is presented to the moral sentiments, therefore, they all ardently and instinctively desire that it should be stopped, and its recurrence prevented, just because it is in direct opposition to their very nature: and this impression on their part is not dependent on the power of the criminal to offend or to forbear. Benevolence grieves at death inflicted by a madman, and calls aloud that it should be averted; Conscientiousnes disavows all theft, although committed by an idiot, and requires that he should be restrained; while Veneration recoils at the irreverences even of the phrensied. The circumstance of the offenders being involuntary agents, quite incapable of restraining their propensities, does not alter the aversion of the moral faculties to their actions; and the reasons of this are obvious: *first*, these faculties hate evil because it is contrary to their nature, from whatever source it springs; and, *secondly*, the circumstance of the aggressor being a necessary agent, does not diminish the calamity inflicted on the sufferer. It is as painful to be killed by a madman as by a deliberate assassin; and it is as destructive to property to be robbed by a cunning idiot, as by an acute and practised thief.

We perceive, therefore, as the first feature of the moral and intellectual law, that the higher sentiments, absolutely and in all circumstances, declare against offences, and demand imperatively that they shall be brought to an end.

There is a great difference, however, between the means which they suggest for accomplishing this object, and those prompted by the propensities. The latter, as I have said, blindly inflict animal resentment without the slightest regard to the *causes* which led to the crime, or the *consequences* of the punishment. They seize the aggressor, and worry, bite, or strangle him; and there they begin and terminate their operations.

The moral and intellectual faculties, on the other hand, embrace even the criminal himself within the range of their sympathies. Benevolence desires to render *him* virtuous, and thereafter happy, as well as to rescue his victim. Veneration desires that he should be treated as a man; and Conscientiousness declares that it cannot with satisfaction acquiesce in any administration towards him that does not tend to remove the motives of his misconduct, and to prevent their recurrence. The first step, then, which the moral and intellectual faculties combine in demanding, is a full exposition of the causes of the offence, and the consequences of the mode of treatment proposed.

Let us, then, pursue this investigation; and here it may be observed, that we are now in condition to do so with something like a chance of success; for by the aid of Phrenology, we have obtained a tolerably clear view of the elementary faculties of the mind, and the effects of organisation on their activity and vigour.

The leading fact, then, which arrests our attention in this inquiry, is, that *every crime proceeds from an abuse of some faculty or other;* and the question immediately arises, Whence originates the tendency to abuse? Phrenology enables us to answer, From three sources: *first*, from particular organs being too large and spontaneously active; *secondly*, from great excitement produced by external causes; or, *thirdly*, from ignorance of what are uses and what are abuses of the faculties.

The moral and intellectual powers next demand, What is the cause of particular organs being too large and active in individuals? Phrenology, for answer, points to the law of hereditary descent, by which the organs most energetic in the parents determine those which shall predominate in the child. Intellect then infers that, according to this view, certain individuals are unfortunate at birth, in having received organs from their parents so ill proportioned, that abuse of some of them is almost an inevitable consequence if they are left to the sole guidance of their own suggestions. Phrenology replies, that the fact appears to be exactly so. In the Museum of the Phrenological Society is exhibited a large assemblage of skulls and casts of the heads of criminals, collected from Europe, Asia, Africa, and America; and an undeniable feature in them all, is a great preponderance of the organs of the animal faculties over those of the moral sentiments and intellect.

In the next place, great excitement from external causes may arise from the individual being pressed by animal want, stimulated by intoxicating liquors, or seduced by evil example, and from a variety of similar influences.

And, thirdly, abuses may arise from sheer want of information concerning the constitution of the mind and its relations to external objects. Persecution for opinion, for example, is a crime obviously referable to this source.

I have examined the cerebral developement of a considerable number of criminals, and inquired into the external circumstances in which they had been placed, and have no hesitation in saying, that if, in the case of every offender, the three sources of crime here enumerated were investigated, reported on, and published, the conviction would become irresistible that the individual was the victim of his nature and external condition, and penitentiaries would be resorted to as the only means of at once abating crime and satisfying the moral feelings of the community. The public err through ignorance, and knowledge only is needed, to ensure their going into the right path.

Moreover, intellect perceives, and the moral sentiments acknowledge, that these causes exist *independently of the will of the offender.* The criminal, for

example, is not the cause of the unfortunate preponderance of the animal organs in his own brain; neither is he the creator of the external circumstances which lead his propensities into abuse, or of the ignorance in which he is involved. Nevertheless, the moral and intellectual faculties of the indifferent spectator of his condition do not, on this account, admit that he ought, either for his own sake or for that of society, to be permitted to proceed in an unrestricted course of crime. They absolutely insist on arresting his progress, and their first question is, How may this best be done? Intellect answers, *By removing the causes which produce the offences.*

The first cause—the great preponderance of the animal organs—cannot, by any means yet known, be summarily removed. Intellect, therefore, points out another alternative—that of supplying, by moral and physical restraint, the control which, in a brain better constituted, is afforded by large moral and intellectual organs; in short, of placing the offender under such a degree of effective control as absolutely to prevent the abuses of his faculties. Benevolence acknowledges this proceeding to be kind, Veneration to be respectful, and Conscientiousness to be just, at once to the offender himself and to society; and Intellect perceives that, whenever it is adopted, it will form an important step towards preventing a repetition of crimes.

The second cause, viz. great excitement from without, may be removed by withdrawing the individual from the influence of the unfavourable external circumstances to which he is exposed. The very restraint and control which serve to effect the first object, will directly tend to accomplish this second one at the same time.

The third cause—namely, ignorance—may be removed by conveying instruction to the intellectual powers.

If these principles be sound, the measures now recommended ought, when viewed in all their consequences, to be not only the most just and benevolent, but at the same time the *most advantageous that could be adopted.* Let us contrast their results with those of the animal method.

Under the animal system, as we have already seen, no measures except the excitement of terror, are taken to *prevent* the commission of crime. Under the moral plan, as soon as a tendency to abuse the faculties appeared in any individual, instant means of prevention would be resorted to, because the sentiments could not be satisfied unless this were done. Under the animal system, no inquiry is made into the future proceedings of the offender, and he is turned loose upon society under the unabated influence of all the causes which led to his infringement of the law; and as effects never cease while their causes continue to operate, he repeats his offence, and becomes the object of a new animal infliction. Under the moral system, the causes would be removed, and the evil effects would cease.

Under the animal system, the propensities of the offender and society are maintained in habitual excitement; for the punishment proceeds from the animal faculties, and is likewise addressed to them. Flogging, for instance, proceeds from Destructiveness, and is addressed solely to sensation and fear. The tread-mill springs from Destructiveness in a milder form, and as its sole object is to cause annoyance to the offender, it is obviously addressed only to Cautiousness and his selfish feelings. Hanging and decapitation undeniably spring from Destructiveness, and are administered as terrors to the propensities of persons criminally disposed. These punishments, again, especially the last, are calculated to gratify the animal faculties, and none else, in the spectators who witness them. The execution of a criminal obviously interests and excites Destructiveness, Cautiousness, and Self-Esteem, in the beholder, and nothing can be farther removed than such exhibitions from the proper food of Benevolence, Veneration, and Conscientiousness.

Under the moral system, again, the faculties exercised and addressed in restraining and instructing the offender, are, as exclusively as possible, the human powers. The propensities are employed merely as the servants of the moral sentiments in accomplishing their benignant purposes, and Benevolence is as actively engaged in behalf of the offender as of society at large. The whole influence of the proceeding is ameliorating and elevating.

Under the animal system, the offspring of parents who have been recently engaged in either suffering, inflicting, or witnessing punishment, inherit, by the organic law, large and active animal organs, occasioned by the excitement of these organs in the parents. Thus a public execution, from the violent stimulus which it produces in the lower faculties of the spectators, may, within twenty-four hours of its exhibition, be the direct cause of a new crop of victims for the gallows.

Under the moral system, children born of parents actively engaged in undergoing, executing, or witnessing the elevating and ennobling process of moral reformation, will, by the organic law, inherit an increased developement of the moral and intellectual organs, and be farther removed than their parents from the risk of lapsing into crime.

Under the animal system, spectators of crime, and accomplices, need to be bribed with large rewards to induce them to communicate their knowledge of the offence; and witnesses require to be compelled by penalties to bear testimony to what they have seen concerning it. Many will recollect the affecting picture of mental agony drawn by the author of Waverley, when Jeanie Deans, at the bar of the High Court of Justiciary, gives evidence against her sister, which was to deprive that sister of life. Parallel cases occur too frequently in actual experience. The real cause of this aversion to betray, and internal repugnance to give evidence, is, that the moral sentiments are revolted by the delivery of the culprit to the cruelty of animal resentment.

Under the moral system, the higher sentiments and intellect of the spectator of a crime, and those of the nearest relatives of the offender, would unite with those of society at large in an unanimous desire to deliver him up with the utmost speed to the ameliorating influence of moral treatment, as the highest benevolence even to himself.

Under the animal system, the office of public executioner is odious, execrable, and universally contemned. If it were *necessary* by the Creator's institutions, it would present the extraordinary anomaly of a *necessary duty* being execrated by the moral sentiments. This would be a direct inconsistency between the dictates of the superior faculties and the arrangement of the external world. But the animal executioner is not acknowledged as necessary by the human faculties. Under the moral system, the criminal would be committed to persons whose duties would be identical with those of the clergyman, the physician, and the teacher. These are the executioners under the moral law; and, just because their avocations are highly grateful to the superior sentiments, they are the most esteemed of mankind.

The highest and the most important object of this long exposition of the principles of punishment under the natural laws, remains to be unfolded.

We are all liable to abuse our faculties; and the inquiry is exceedingly interesting, what, in our cases, are the causes of the infringement of the moral law. The offences which we daily commit, are neither more nor less than minor degrees of abuse of the very same faculties of which crimes are the greater. For example, if in private life we backbite or slander our neighbour, we commit abuses of Self-Esteem and Destructiveness, which, if increased merely in intensity, without at all changing their nature, might end, as in Ireland, in maiming his cattle, or, as in Spain or Italy, in murdering him outright. If in any transaction of life we deliberately give false representations as to any article we have for sale, or overcharge it in price,

this is just a minor abuse of Secretiveness and Acquisitiveness acting in absence of the moral sentiments, of which abuse pocket-picking and stealing are higher degrees. I need not carry the parallel farther. It is so obvious that every offence against the moral law is an abuse of some faculty or other, and that great crimes are merely great abuses, and smaller offences more slight aberrations, that every one must perceive the fact to be so.

Reverting to what I observed in regard to crime, I repeat that every infringement of the moral law, the smallest as well as the greatest, is denounced by the moral sentiments and intellect; just because it is opposed to their nature, and they desire absolutely to bring all abuses to an end, from whatever source they spring, and be they voluntary or involuntary.

Animal resentment is, according to the present practice of society, resorted to as the chief method of dealing with the minor, just as it is with the higher, abuses of our faculties. If one gentleman insults another, the offended party makes no inquiry into the state of mind and other causes that produced the insult, but proceeds to knock him on the head, to challenge and thereafter to shoot him, or to prosecute him in a jury court, and inflict pain by depriving him of money. These are the common methods by which men inflict animal retribution on each other, and in essential character they do not much differ from those followed by the lower creatures.

I do not say that these proceedings are absolutely without beneficial effect. The animal faculties are selfish, and these inroads upon their enjoyment have undoubtedly a tendency to check them. It is painful to a gentleman to be knocked down or shot, and, in consequence, many individuals whose moral principles are low, are induced so to manage matters as to avoid these forms of retaliation, who would not be restrained from insulting their neighbours by the dictates of their own feelings. But here the benefit terminates. The infliction of the chastisement excites only the animal faculties of the offended party, and it is addressed exclusively to the animal part of the offender's mind. Habitual morality, however, cannot exist without supreme activity of the moral sentiments; and the whole code of animal law, and animal punishment, does nothing whatever to establish this as a permanent condition of mind.

Under the moral and intellectual law, every thing is different. The intellectual faculties inquire into the causes of abuses, and the moral sentiments desire to remove them with kindness and respect even for the offender himself. If one person insult another, the intellect, aided by Phrenology, perceives that he must of necessity do so either from extreme predominance of Combativeness, Destructiveness, and Self-Esteem in his own brain, so that he has an instinctive tendency to insult, just as some ill-natured dogs and horses have a tendency to bite without provocation; or, *secondly*, from excessive stimulus from without—that is to say, from some aggression offered to these lower organs by other people; or, *thirdly*, from intellectual ignorance—that is, erroneously supposing unreal motives and intentions in the party whom he insults. If one person cheat another, intellect, with the assistance of Phrenology, perceives that he can do so only because Acquisitiveness and Secretiveness predominate in him over Conscientiousness, because the external temptation to cheat is too powerful for his combination of faculties to resist, or because he is ignorant that cheating is equally fatal to his own interest as injurious to that of his victim. In short, the conclusion is irresistibly come to, that no abuse of the animal faculties can be committed that may not be traced to these or similar causes.

But intellect and the moral sentiments desire to remove the causes as the most effectual way of putting an end to the effects, and their method is one congenial to their own constitution. If a man is by nature irritable, and prone to injure every one with whom he comes into contact, they desire most sedulously to remove every cause that may tend to exasperate his propensities, and also to surround him with a pure moral and intellectual atmosphere. If he is exposed to temptation, they desire to withdraw it; if he is misinformed, ignorant, or deceived, they desire to instruct him and give him correct information. After we have suffered injury from another, if we perceive the causes from which it proceeded to be really such as I have now explained, and if we comprehend and believe in the supremacy of the moral law, it will be impossible for us to prefer the method of redress by animal resentment.

The question naturally presents itself, What is the distinction between right and wrong, under this system? If offences proceed from unfortunate developement of brain, not fashioned by the individual himself—from external temptations which he did not make—or from want of knowledge which he never had it in his power to possess—how are the distinctions between right and wrong, merit and demerit, to be explicated and maintained? The answer is simple.

The *natural distinction between right and wrong*, so far as man is concerned, depends on the constitution of the moral and intellectual faculties. The act of wantonly killing another is wrong, because it is in direct opposition to the dictates of Benevolence. The act of appropriating to ourselves effects belonging to another is wrong, because it is distinctly denounced by Conscientiousness; and so with all other misdeeds. The *authority* of the moral law, in forbidding these offences, depends on the whole arrangements of creation being constituted to enforce its dictates. If Benevolence and Conscientiousness denounce murder, and if the whole other faculties of the mind, and the external order of things, harmonise with their dictates and combine to punish the offender, the foundation and sanctions of the moral law appear abundantly strong. It has been objected, that, in Tartary, to steal from strangers is honourable; but Dr T. Brown has well answered this objection. There are more principles in the mind than Benevolence, Veneration, and Conscientiousness; and it is quite possible to misinform the intellect, and thereby misdirect the propensities and sentiments. For example, the Tartars are taught to believe that all men beyond their own tribes are their enemies, and would rob and murder them if they could; and, of course, as long as this intellectual conviction lasts, strangers become the objects of their animal resentment. Every foreigner is, in their eyes, a criminal, clearly convicted of deliberate purpose to rob and murder. In Britain, under Lord Ellenborough's act, when men are convicted in a court of this *intention*, they are delivered over to the hangman to be executed; and we might as well maintain, as a general proposition, that the English are fond of hanging one another, as that the Tartars approve of robbery and murder. Strangers whom the latter maltreat in this manner, actually stand convicted in their minds of an intention of using them in the same way if they could. The real method of arriving at a correct view of the question is to suppose the conviction complete in a Tartar's mind, that other men love him and make him an object of their most sedulous benevolence, and then ask him whether he approves of robbing and murdering a benefactor. There is no instance of human nature, in a state of sanity, regarding such a deed as virtuous. The moral law, therefore, when cleared of other principles that may act along with it, but are not part of it, is obviously universal and inflexible in its dictates

The views contained in this chapter were printed and distributed among a few friends in 1827, and I was favoured by them with several remarks. Two of these appear to me to merit a reply.

It is objected, that, according to the moral system of treating offenders, punishment would be abrogated and crime encouraged.

I respectfully answer, that if this system be right in itself, and suited to the nature of man, it will

carry in itself all the punishment that will be needed, or that can serve any beneficial end. I believe that to an individual whose mind consists chiefly of animal propensities and intellect—confinement, compulsory labour, and the enforcement of moral conduct, will be highly disagreeable, and that this is the punishment which the Creator designed should attend that unfortunate combination of mental qualities. It is analogous to the pain of a wound; the object of which is, to induce the patient to avoid injuring himself again. The irksomeness and suffering to a criminal, inseparable from confinement and forced labour, are intended as inducements to him to avoid infringements of the moral law; and when perceived by himself to arise from the connexion established by the Creator between crime and the most humane means of restraining it, he will learn to submit to the infliction, without those rebellious feelings which are generally excited by pure animal retribution. It appears to me that the call for more suffering than would accompany the moral method of treatment, proceeds to a great extent from the yet untamed barbarism of our own minds; just as it was the savageness of the hearts of our ancestors which led them to regard torture and burning as necessary in their administration of criminal justice. In proportion as the higher sentiments shall gain ascendancy among men, severity will be less in demand, and its inutility will be more generally perceived. The Americans, in their penitentiaries, have set an admirable example to Europe in regard to criminal legislation. Their views still admit of improvement, but they have entered on the right path by which success is to be attained. Dr Caldwell of Lexington has offered them excellent counsel, which I hope they will appreciate and follow.

Another objection is, that the views now advocated, even supposing them to be true, are utopian, and cannot be carried into effect in the present condition of society. I deny the first branch of this objection, but admit the second to be well founded. No system of morals which is true, can be utopian—this term being understood to mean visionary and impracticable. But a true system may not be reducible to practice, on its first announcement, by a people who do not know one jot of its principles, and whose guides sedulously divert their minds from studying it. Christianity itself has not yet been generally practised; but does any rational man on this account denounce it as utopian and worthless? It would be folly to expect judges and juries to abandon the existing practice of criminal jurisprudence, and to adopt that which is here recommended, before they, and the society for whom they act, understand and approve of its principles; and no one who bears in mind by what slow and laborious efforts truth makes its way, and how long a period is necessary before it can develope itself in practice, will expect any new system to triumph in the age in which it was first promulgated. I have frequently repeated in this work, that, by the moral law, we cannot enjoy the full fruits even of our own intelligence and virtue, until our neighbours have been rendered as wise and amiable as ourselves. No reasonable man, therefore, can expect to see the principles expounded in this work, although true, generally diffused and adopted in society, until the natural means of communicating a knowledge of them, and producing a general conviction of their truth and utility, shall have been perseveringly used for a period sufficient to accomplish this end. In the mean time, the established practices of society must be supported, if not respected; and he is no friend to the real progress of mankind, who, the moment after he has sown his moral principles, would attempt to gather the fruit of them before he has allowed summer and autumn to bring the produce to maturity. The rational philanthropist will zealously teach his principles, and introduce them into practice as favourable opportunities occur: not doubting that he will thereby sooner accomplish his object, than by making premature attempts at realising them, which must inevitably end in disappointment.*

SECT. II.—MORAL ADVANTAGES OF PUNISHMENT.

After the intellect and moral sentiments have been brought to recognise the principles of the Divine administration, so much wisdom, benevolence, and justice, are discernible in the natural laws, that our whole nature is ameliorated in consequence of undergoing the punishments annexed to them. Punishment endured by one individual also serves to warn others against transgression. These facts afford another proof that a grand object of the arrangements of creation is the improvement of the moral and intellectual nature of man. So strikingly conspicuous, indeed, is the ameliorating influence of suffering, that many persons have supposed this to be the primary object for which it is sent; a notion which, with great deference, I cannot help regarding as unfounded in principle, and dangerous in practice. If evils and misfortunes are mere mercies of Providence, it follows that a headache consequent on a debauch is not intended to prevent repetition of drunkenness, so much as to prepare the debauchee for "the invisible world;" and that shipwreck in a crazy vessel is not designed to render the merchant more cautious, but to lead him to heaven.

It is undeniable, that in innumerable instances pain and sorrow are the direct consequences of our own misconduct; at the same time it is obviously benevolent in the Deity to render them beneficial directly, as a warning against future transgression, and indirectly, as a means of leading to the purification of the mind. Nevertheless, if we shall imagine that in some instances it is dispensed as a direct punishment for particular transgressions, and in others only on account of sin in general, and with the view of ameliorating the spirit of the sufferer, we shall ascribe inconsistency to the Creator, and expose ourselves to the danger of attributing our own afflictions to his favour, and those of others to his wrath; thus fostering in our minds self-conceit and uncharitableness. Individuals who entertain the belief that bad health, worldly ruin, and sinister accidents, befalling them, are not punishments for infringement of the laws of nature, but particular manifestations of the love of the Creator towards themselves, make slight inquiry into the natural causes of their miseries, and bestow few efforts to remove them. In consequence, the chastisements endured by them neither correct their own conduct, nor deter others from committing similar transgressions. Some religious sects, who espouse these notions, literally act upon them, and refuse to inoculate with the cow-pox to escape contagion, or take other means of avoiding natural calamities. Regarding these as dispensations of Providence sent to prepare them for a future world, they conceive that the more that befall them the better. Farther, these ideas, besides being repugnant to the common sense of mankind, are at variance with the principle that the world is arranged so as to favour virtue and discountenance vice; because favouring virtue means obviously that the favoured virtuous will positively enjoy more happiness, and negatively suffer fewer misfortunes, than the vicious. The view, therefore, now advocated, appears less exceptionable, viz. that punishment serves a double purpose—directly to warn us against transgression, and indirectly (when rightly apprehended) to subdue our lower propensities, and purify and vivify our moral and intellectual powers.

Bishop Butler coincides in this interpretation of

* The leading ideas expounded in this chapter have been most ably and eloquently followed out by Dr Charles Caldwell, Professor of the Institutes of Medicine in the University of Lexington, Kentucky, in his "New Views of Penitentiary Discipline, and Moral Education and Reformation of Criminals," published at Philadelphia in 1829, and reprinted in the Phrenological Journal, vol. viii. pp. 385, 493. Mr Simpson also has treated the subject with great ability in the same journal, vol. ix. p. 481, and in the appendix to his work on the "Necessity of Popular Education"—a work in which he has expounded and applied many principles of the present treatise with much acuteness and felicity of illustration.

natural calamities. "Now," says he, "in the present state, all which we enjoy, *and a great part of what we suffer, is put in our own power.** For *pleasure and pain are the consequences of our actions;* and we are endued by the Author of our nature with capacities of foreseeing these consequences." "I know not that we have any one kind or degree of enjoyment, but by the means of our own actions. And, *by prudence and care*, we may, for the most part, pass our days in tolerable ease and quiet: or, on the contrary, we may, *by rashness, ungoverned passion, wilfulness, or even by negligence*, make ourselves *as miserable as ever we please.* And many do please to make themselves extremely miserable: *i. e.* they do what they knew beforehand will render them so. They follow those ways, the fruit of which they know, by instruction, example, experience, will be disgrace, and poverty, and sickness, and untimely death. This every one observes to be the general course of things; though it is to be allowed, we cannot find by experience, that *all* our sufferings are owing to our own follies."—*Analogy*, part i. ch. 2. In accordance with this last remark, I have treated of *hereditary* diseases; and evils resulting from earthquakes, volcanoes, hurricanes, and other convulsions of nature, may be added to the same class.

It has been objected that such punishments as the breaking of an arm by a fall, are often so disproportionately severe, that, in appointing them, the Creator must have had in view some other and more important object than that of making them serve as mere motives to the observance of the physical laws; and that that object must be to influence the mind of the sufferer, and draw his attention to concerns of higher import.

In answer I remark, that the human body is liable to destruction by severe injuries; and that the degree of suffering, in general, bears a just proportion to the danger connected with the transgression. Thus, a slight surfeit is attended only with headache or general uneasiness, because it does not endanger life; a fall on any muscular part of the body is followed either with no pain, or with only a slight indisposition, for the reason that it is not seriously injurious to life; but when a leg or arm is broken, the pain is intensely severe, because the bones of these limbs stand high in the scale of utility to man. The human body is so framed that it may fall nine times and suffer little damage, but the tenth time a limb may be broken, which will entail a painful chastisement. By this arrangement the mind is kept alive to danger to such an extent as to insure general safety, while at the same time it is not overwhelmed with terror by punishments too severe and too frequently repeated. In particular states of the body, a slight wound may be followed by inflammation and death; but these are the results not simply of the wound, but of a previous derangement of health, occasioned by departures from the organic laws.

On the whole, therefore, no adequate reason appears for regarding the consequences of physical accidents in any other light than as direct punishments for infringement of the natural laws, and indirectly as a means of accomplishing moral and religious improvement.

In the preceding chapters we have obtained glimpses of some of the *sanctions* of the moral law, which may be briefly recapitulated. If we obey it, many desirable results ensue. In the *first* place, we enjoy the highest gratifications of which our nature is susceptible, in habitual and sustained activity of our noblest faculties. *Secondly*, We become objects of esteem and affection to our fellow-men, and enjoy exalted social pleasure. *Thirdly*, Whatever we undertake, being projected in harmony with the course of nature, will prosper. *Fourthly*, By observing the moral law, we shall place ourselves in the most favourable condition for obeying the organic law, and then enjoy health of body and buoyancy of mind. *Fifthly*, By obeying the moral, intellectual, and organic laws, we shall place ourselves in the best condition for observing the physical laws, and thereby reap countless benefits conferred by them.

To perceive, on the other hand, the penalties by which the Creator punishes infringements of the moral law, we need only to reverse the picture. There is denial of that elevated, refined, and steady enjoyment, which springs from the supreme activity of the moral sentiments and intellect, and from the perception of the harmony between them and the institutions of creation. By infringing the moral law, we become objects of dislike and aversion to our fellow-men; and this carries denial of gratification to many of our social faculties. Whatever we undertake in opposition to the moral law, being an enterprise against the course of nature, cannot succeed; and its fruits must therefore be disappointment and vexation. Inattention to the moral and intellectual law incapacitates us for obedience to the organic and physical laws; and sickness, pain, and poverty overtake us. The whole scheme of creation, then, appears constituted for the purpose of enforcing obedience to the moral law: virtue, religion, and happiness, seem to be founded in the inherent constitution of the human faculties, and the adaptation of the external world to them; and not to depend on the will, the fancies, or the desires of man.

* These words are printed in Italics in the original.

CHAPTER VII.

ON THE COMBINED OPERATION OF THE NATURAL LAWS.

Combined operation of the natural laws illustrated by reference to the defects of the arrangements for jury trial in Scotland,—the great fires in Edinburgh in 1824,—shipwrecks from ignorance or irrational conduct in the commander,—Captain Lyon's unsuccessful attempt to reach Repulse Bay,—foundering of decayed and ill-equipped vessels at sea,—and the mercantile distress which overspread Britain in 1825–6.

HAVING now unfolded several of the natural laws, and their effects, and having also attempted to show that each is inflexible and independent in itself, and requires absolute obedience (so that a man who neglects the physical law will suffer the physical punishment, although he may be very attentive to the moral law; that one who infringes the organic law will suffer organic punishment, although he may obey the physical law; and that a person who violates the moral law will suffer the moral punishment, although he should observe the other two), I proceed to show the mutual relationship among these laws, and to adduce some instances of their joint operation.

The defective administration of justice is a fertile source of human suffering in all countries; yet it is surprising how rude are the arrangements which are still in use, even in a free and enlightened country, for accomplishing this important end.

A Scotch Jury in a civil cause, even in Edinburgh, frequently presents the following particulars for observation. It consists of twelve men, eight or ten of whom are collected from the country, within a distance of twenty or thirty miles of the capital. These individuals hold the plough, wield the hammer or the hatchet, or carry on some other useful and respectable but laborious occupation, for six days in the week. Their muscular systems are in constant exercise, and their brains are rarely called on for any great exertion. They are not accustomed to read, beyond the Bible and a weekly newspaper; they are still less in the habit of thinking; and in general they live much in the open air.

In this condition they are placed in a jury-box at ten in the morning, after having travelled probably from seven to twenty-five miles to reach the court: counsel address long speeches to them; numerous witnesses are examined; and the cause is branched out into complicated details of fact, and wire-worn dis-

tinctions in argument. The court is a small and ill-ventilated apartment, and in consequence is generally crowded and over-heated. Without being allowed to breathe fresh air or to take exercise or food, they are confined to their seats till eight or ten in the evening —when they retire to return a verdict, by which they may dispose of thousands of pounds, and in which they are required by law to be unanimous.

There is here a tissue of errors which could not exist for a day if the natural laws were generally understood. *First*, the daily habits and occupations of such jurors render their brains inactive, and their intellects consequently incapable of attending to, and comprehending, complicated cases of fact and argument. *Secondly*, their memories cannot retain the facts, while their skill in penmanship and literature is not sufficient to enable them to take notes; and their reflecting faculties are not capable of generalising. Their education and daily pursuits, therefore, do not furnish them with principles of thinking, and power of mental action, sufficient to enable them to unravel the web of intricacies presented to their understandings. *Thirdly*, protracted confinement in a close apartment, amidst vitiated air, operates injuriously on the most vivacious temperaments:—on such men it has tenfold effect in lowering the action of the brain and inducing mental incapacity, because it is diametrically opposed to their usual condition. Add to these considerations, that occasionally a jury trial lasts two, three, or even four days, each of which presents a repetition of the circumstances here described; and then the reader may judge whether such jurors are the fittest instruments, and in the best condition, for disposing of the fortunes of a people who boast of their love of justice, and of their admirable institutions for obtaining it.

The influence of the bodily condition of a human being on his mental capacity seems never to have entered the imaginations of our legislators as a matter of importance in the administration of justice. In the Circuit Courts of Scotland, the judges frequently sit for several days in succession in a crowded apartment, intently engaged in business, from ten o'clock in the morning till eight, ten, or twelve at night, without any proper intermission or exercise. They go to their hotel at these late hours, dine, take wine, retire to bed, and next morning resume their seats on the bench. Now, by the laws of their nature, which never cease to operate, the effect of this conduct is to impair the vigour of the moral and intellectual organs, and, by constraint, want of exercise, and obstruction of the bodily functions, to irritate and exalt the activity of the animal organs; so that, at the close of a circuit, even the strongest and most estimable and talented individual is physically deteriorated, and mentally incapacitated for the distribution of justice, compared with himself when he began his labours. It is accordingly matter of observation, that in proportion as a long and heavy session in circuit advances, irritability, impatience, and intellectual obscuration, appear in the judges. The accused who go to trial first, therefore, have a far higher chance of obtaining justice, than those who appear last on the roll.

In these instances there are evident infringements of the organic and moral laws; and the combined result is the maladministration of justice, of which the country so loudly complains. The proper remedies will be found in educating the people more effectually, in training them to the exercise of their mental faculties, and in observing the organic laws in the structure of court-rooms, and in the proceedings that take place within them.

Another example of the combined operation of the natural laws is afforded by the great fires which occurred in Edinburgh in November 1824, when the Parliament Square and a part of the High Street were consumed. That calamity may be viewed in the following light:—The Creator constituted England and Scotland with such qualities, and placed them in such relationship, that the inhabitants of both kingdoms would be most happy in acting towards each other, and pursuing their separate vocations, under the supremacy of the moral sentiments. We have lived to see this practised, and to reap the reward. But the ancestors of the two nations did not believe in this constitution of the world, and they preferred acting according to the suggestions of the propensities; that is to say, they waged furious wars, and committed wasting devastations on each other's properties and lives. It is obvious from history, that the two nations were equally ferocious, and delighted reciprocally in each other's calamities. This was clearly a violent infringement of the moral law; and one effect of it was to render the possession of a stronghold an object of paramount importance. The hill on which the Old Town of Edinburgh is built, was naturally surrounded by marshes, and presented a perpendicular front to the west, capable of being crowned with a castle. It was appropriated with avidity, and the metropolis of Scotland was founded there, obviously and undeniably under the inspiration purely of the animal faculties. It was fenced round with ramparts, built to exclude the fierce warriors who then inhabited the country lying south of the Tweed, and also to protect the inhabitants from the feudal banditti who infested their own soil. The space within the walls, however, was limited and narrow; the attractions to the spot were numerous; and to make the most of it, our ancestors erected the enormous masses of high, confused, and crowded buildings which now compose the High Street, and the wynds, or alleys, on its two sides. These abodes, moreover, were constructed, to a great extent, of timber; for not only the joists and floors, but the partitions between the rooms, were made of massive wood. Our ancestors did all this in the perfect knowledge of the physical law, that wood ignited by fire not only is consumed itself, but envelopes in inevitable destruction every combustible object within its influence. Farther, their successors, even when the necessity for close building had ceased, persevered in the original error; and, though well knowing that every year added to the age of such fabrics, increased their liability to burn, they not only allowed them to be occupied as shops filled with paper, spirits, and other highly combustible materials, but let the upper floors for brothels—introducing thereby into the heart of this magazine of conflagration the most reckless and immoral of mankind. The consummation was the two tremendous fires of November 1824 (the one originating in a whisky-cellar, and the other in a garret-brothel), which consumed the Parliament Square and a portion of the High Street, destroying property to the extent of many thousands of pounds, and spreading misery and ruin over a considerable part of the population of Edinburgh. Wonder, consternation, and awe, were forcibly excited at the vastness of the calamity; and in the sermons that were preached, and the dissertations that were written upon it, much was said of the inscrutable ways of Providence, that sent such visitations on the people, enveloping the innocent and the guilty in one common sweep of destruction.

According to the exposition of the ways of Providence which I have ventured to give, there was nothing wonderful, nothing vengeful, nothing arbitrary, in the whole occurrence. The only reason for surprise was, that it did not take place generations before. The necessity for these fabrics originated in gross violation of the moral law; they were constructed in high contempt of the physical law; and, latterly, the moral law was set at defiance, by placing in them inhabitants abandoned to the worst habits of recklessness and intoxication. The Creator had bestowed on men faculties to perceive all this, and to avoid the calamity, whenever they chose to exert them; and the destruction that ensued was the punishment of following the propensities, in preference to the dictates of intellect and morality. The object of the destruction, as a natural event, was to lead men to avoid repetition of the offences: but the principles of the divine government are not yet comprehended. Acquisitiveness whispers that more money may be made of houses consisting of

five or six floors under one roof, than of houses consisting of only two or three; and erections the very counterparts of the former, have since reared their heads on the spot where the others stood, and, sooner or later, they also will be overtaken by the natural laws, which never slumber or sleep.

The true method of arriving at a sound view of calamities of this kind, is to direct our attention, in the first instance, to the law of nature, from the operation of which they have originated; then to find out the uses and advantages of that law, when observed; and to discover whether or not the evils under consideration have arisen from violation of it. In the present instance, we ought never to lose sight of the fact, that the houses in question stood erect, and the furniture in safety, by the very same law of gravitation which made them topple to the foundation when it was infringed; and that mankind enjoy all the benefits which result from the combustibility of the timber as fuel, by the very same law which makes it, when unduly ignited, the food of a destructive conflagration.

This instance affords a striking illustration of the manner in which the physical and organic laws are constituted in harmony with, and in subserviency to, the moral law. We see clearly that the leading cause of the construction of such erections as the houses in the Old Town of Edinburgh (with the deprivation of free air, and liability to combustion, that attend them) arose from the excessive predominance of Combativeness, Destructiveness, Self-Esteem, and Acquisitiveness, in our ancestors; and although the ancient personages who erected these monuments of animal supremacy had no conception that, in doing so, they were laying the foundations of a severe punishment to themselves and their posterity—yet when we compare the comforts and advantages that would have accompanied dwellings constructed under the inspiration of Benevolence, Ideality, and enlightened Intellect, with the contaminating, debasing, and dangerous effects of their actual workmanship, we perceive most clearly that our ancestors were really the instruments of chastising their own transgressions, and of transmitting that chastisement to their posterity so long as the animal supremacy shall be prolonged.

Another example may be given. Men, by uniting under one leader, may, in virtue of the social law, acquire prodigious advantages to themselves, which singly they could not obtain; and, as formerly stated, the condition under which the benefits of that law are permitted is, that the leader shall know and obey the natural laws connected with his enterprise: If he neglect these, then the same principle which gives the social body the benefit of his observing them, involves it in the punishment of his infringement; and this is just, because, under the natural law, the leader must necessarily be chosen by his followers, and they are responsible for not attending to his natural qualities. Some illustrations of the consequences of neglect of this law may be stated, in which the mixed operation of the physical and moral laws will appear.

During the French war, a squadron of English ships was sent to the Baltic with military stores, and, in returning home up the North Sea, they were beset, for two or three days, by a thick fog. It was about the middle of December, and no correct knowledge of their exact situation was possessed. Some of the commanders proposed lying-to all night, and proceeding only during day, to avoid running ashore unawares. The commodore was exceedingly attached to his wife and family, and, stating his determination to pass Christmas with them in England if possible, ordered that the ships should sail straight on their voyage. The very same night they all struck on a sand-bank off the coast of Holland; two ships of the line were dashed to pieces, and every man on board perished. The third ship, drawing less water, was forced over the bank by the waves and stranded on the beach; the crew was saved, but led to a captivity of many years' duration. Now, these vessels were destroyed under the physical laws; but this calamity owed its origin to the predominance of the animal over the moral and intellectual faculties in the commodore. The gratification which he sought to obtain was individual and selfish; and if his Benevolence, Veneration, Conscientiousness, and Intellect, had been as alert as his domestic affections, and carried as forcibly home to his mind the welfare of the men under his cnarge as that of his own family; nay, if these faculties had been sufficiently alive to see the danger to which he exposed even his own life, and the happiness of his wife and children—he never could have followed the precipitate course which consigned himself, and so many brave men, to a watery grave, within a few hours after his resolution was formed.

Some years ago, the Ogle Castle East Indiaman was offered a pilot coming up the Channel, but the captain refused assistance, professing his own skill to be sufficient. In a few hours the ship ran aground on a sand-bank, and every human being on board perished in the waves. This accident also arose from the physical laws, but the unfavourable operation of it sprang from Self-Esteem, pretending to knowledge which the intellect did not possess; and as it is only by employing the latter that obedience can be yielded to the physical laws, the destruction of the ship was indirectly the consequence of the infringement of the moral and intellectual laws.

An old sailor, whom I met on the Queensferry passage, told me that he had been nearly fifty years at sea, and once was in a fifty-gun ship in the West Indies. The captain, he said, was a "fine man;" he knew the climate, and foresaw a hurricane coming, by its natural signs;—on one occasion, in particular, he struck the topmasts, lowered the yards, lashed the guns, and made each man supply himself with food for thirty-six hours; and scarcely was this done when the hurricane came. The ship lay for four hours on her beam-ends in the water, but all was prepared; the men were kept in vigour during the storm, and fit for every exertion; the ship at last righted, suffered little damage, and proceeded on her voyage. The fleet which she convoyed was dispersed, and a great number of the ships foundered. Here we see the benefits accruing from the supremacy of the moral and intellectual faculties, and discover to what a surprising extent these present a guarantee even against the fury of the physical elements in their highest state of agitation.

A striking illustration of the kind of protection afforded by high moral and intellectual qualities, even amidst the most desperate physical circumstances, is furnished by the following letter, written by the late Admiral Lord Exmouth to a friend. "Why do you ask me to relate the wreck of the Dutton?" says his lordship. "Susan (Lady Exmouth) and I were driving to a dinner-party at Plymouth, when we saw crowds running to the Hoe; and learning it was a wreck, I left the carriage to take her on, and joined the crowd. I saw the loss of the whole five or six hundred men was inevitable without somebody to direct them, for the last officer was pulled on shore as I reached the surf. I urged their return, which was refused; upon which I made the rope fast to myself, and was hauled through the surf on board—established order, and did not leave her until every soul was saved but the boatswain, who would not go before me. I got safe, and so did he, and the ship went all to pieces."

Indeed, there is reason to believe that the human intellect will, in time, be able, by means of science and observation, to arrive at a correct anticipation of approaching storms, and thus obtain protection against their effects. The New Zealanders, it is said, predict the changes of the weather with extraordinary skill. "One evening, when Captain Cruise and some of his friends were returning from a long excursion up one of the rivers, although the sky was at the time without a cloud, a native who sat in the boat with them, remarked that there would be heavy rain the next day; a prediction which they were the more inclined to believe, by finding, when they returned on board the ship, that the barometer had fallen very

much, and which the deluge of the following morning completely confirmed."*

The utility of the marine barometer, or the sympiesometer, in indicating approaching storms, is strikingly shown by the following extract from the Edinburgh Philosophical Journal.

"The correspondent (Mr Stevenson, civil engineer) to whom we are indebted for the notice regarding the Scotch fisheries, inserted in this number (p. 129), informs us, that having occasion, towards the conclusion of his voyage, in the beginning of September last, to visit the Isle of Man, he beheld the interesting spectacle of about three hundred large fishing-boats, each from fifteen to twenty tons' burden, leaving their various harbours at that island in an apparently fine afternoon, and standing directly out to sea, with the intention of prosecuting the fishery under night. He at the same time remarked, that both the common marine barometer, and Adie's sympiesometer, which were in the cabin of his vessel, indicated an approaching change of weather, the mercury falling to 29.5 inches. It became painful, therefore, to witness the scene; more than a thousand industrious fishermen, lulled to security by the fineness of the day, scattering their little barks over the face of the ocean, and thus rushing forward to imminent danger, or probable destruction. At sunset, accordingly, the sky became cloudy and threatening, and in the course of the night it blew a very hard gale, which afterwards continued for three days successively. This gale completely dispersed the fleet of boats, and it was not without the utmost difficulty that many of them reached the various creeks of the island. It is believed no lives were lost on this occasion; but the boats were damaged, much tackle was destroyed, and the men were unnecessarily exposed to danger and fatigue. During the same storm, it may be remarked, thirteen vessels were either totally lost or stranded between the Isle of Anglesey and St Bee's Head in Lancashire. Mr Stevenson remarks how much it is to be regretted that the barometer is so little in use in the mercantile marine of Great Britain, compared with the trading vessels of Holland; and observes, that though the common marine barometer is perhaps too cumbersome for the ordinary run of fishing and coasting vessels, yet Adie's sympiesometer is so extremely portable, that it may be carried even in a Manx boat. Each lot of such vessels has a commodore, under whose orders the fleet sails: it would therefore be a most desirable thing that a sympiesometer should be attached to each commodore's boat, from which a preconcerted signal of an expected gale or change of weather, as indicated by the sympiesometer, could easily be given." —*Edin. Phil. Journ.* ii. 196.

Dr Neil Arnot, in mentioning the great utility of the marine barometer, states that he himself was "one of a numerous crew who probably owed their preservation to its almost miraculous warning. It was in a southern latitude. The sun had just set with placid appearance, closing a beautiful afternoon, and the usual mirth of the evening watch was proceeding, when the captain's order came to prepare with all haste for a storm. The barometer had begun to fall with appalling rapidity. As yet, the oldest sailors had not perceived even a threatening in the sky, and were surprised at the extent and hurry of the preparations; but the required measures were not completed, when a more awful hurricane burst upon them than the most experienced had ever braved." "In that awful night, but for the little tube of mercury which had given the warning, neither the strength of the noble ship, nor the skill and energies of the commander, could have saved one man to tell the tale."†

One of the most instructive illustrations of the connexion between the different natural laws is presented in Captain Lyon's Brief Narrative of an unsuccessful attempt to reach Repulse Bay, in his Majesty's ship Griper, in the year 1824.

Captain Lyon mentions, that he sailed in the Griper on the 13th June 1824, in company with his Majesty's surveying vessel Snap, as a store-tender. The Griper was 180 tons burden, and "drew 16 feet 1 inch abaft, and 15 feet 10 inches forward." On the 26th, he "was sorry to observe that the Griper, from her great depth and sharpness forward, pitched very deeply." She sailed so ill, that, "in a stiff breeze, and with studding-sails set, he was unable to get above four knots an hour out of her, and she was twice whirled round in an eddy in the Pentland Firth, from which she could not escape." On the 3d July, he says, "being now fairly at sea, I caused the Snap to take us in tow, which I had declined doing as we passed up the east coast of England, although our little companion had much difficulty in keeping under sufficiently low sail for us, and by noon we had passed the Stack Back." "The Snap was of the greatest assistance, the Griper frequently towing at the rate of five knots, in cases where she would not have gone three." "On the forenoon of the 16th, the Snap came and took us in tow; but, at noon on the 17th, strong breezes and a heavy swell obliged us again to cast off. We scudded while able, but our depth in the water caused us to ship so many heavy seas, that I most reluctantly brought-to under storm stay-sails. This was rendered exceedingly mortifying, by observing that our companion was perfectly dry, and not affected by the sea." "When our stores were all on board, we found our narrow decks completely crowded by them. The gangways, forecastle, and abaft the mizen-mast, were filled with casks, hawsers, whale-lines, and stream-cables, while on our straitened lower decks we were obliged to place casks and other stores, in every part but that allotted to the ship's company's mess-tables; and even my cabin had a quantity of things stowed away in it." "It may be proper to mention, that the *Fury* and *Hecla*, which were enabled to stow *three* years' provisions, were each exactly *double* the size of the Griper, and the Griper carried two years' and a half's provisions."

Having arrived in the Polar Seas, they were visited by a storm, of which Captain Lyon gives the following description:—"We soon, however, came to fifteen fathoms, and I kept right away, but had then only ten; when, being unable to see far around us, and observing, from the whiteness of the water, that we were on a bank, I rounded to at 7 A. M., and tried to bring up with the starboard-anchor and seventy fathoms chain, but the stiff breeze and heavy sea caused this to part in half an hour, and we again made sail to the north-eastward; but finding we came suddenly to seven fathoms, and that the ship could not possibly work out again, as she would not face the sea, or keep steerage-way on her, I most reluctantly brought her up with three bowers and a stream in succession, yet not before we had shoaled to five and a half. This was between 8 and 9 A. M., the ship pitching bows under, and a tremendous sea running. At noon, the starboard-bower anchor parted, but the others held.

"As there was every reason to fear the falling of the tide, which we knew to be from twelve to fifteen feet on this coast, and in that case the total destruction of the ship, I caused the long-boat to be hoisted out, and, with the four smaller ones, to be stored to a certain extent with arms and provisions. The officers drew lots for their respective boats, and the ship's company were stationed to them. The long-boat having been filled full of stores which could not be put below, it became requisite to throw them overboard, *as there was no room for them on our very small and crowded decks, over which heavy seas were constantly sweeping.* In making these preparations for taking to the boats, it was evident to all, that the long-boat was the only one that had the slightest chance of living under the lee of the ship, should she be wrecked; but every man and officer drew his lot with the greatest composure, though two of our boats

* Library of Entertaining Knowledge; *The New Zealanders*, p. 381.

† Arnot's Elements of Physics, i. 350.

would have swamped the instant they were lowered. Yet, such was the noble feeling of those around me, that it was evident, that, had I ordered the boats in question to be manned, their crews would have entered them without a murmur. In the afternoon, on the weather clearing a little, we discovered a low beach all around astern of us, on which the surf was running to an awful height, and it appeared evident that no human power could save us. At 3 P. M., the tide had fallen to twenty-two feet (*only six more than we drew*), *and the ship, having been lifted by a tremendous sea, struck with great violence the length of her keel.* This we naturally conceived was the forerunner of her total wreck, and we stood in readiness to take to the boats, and endeavour to hang under her lee. She continued to strike with sufficient force to have burst any less fortified vessel, at intervals of a few minutes whenever an unusual heavy sea passed us. And, as the water was so shallow, these might be called breakers rather than waves, for each in passing burst with great force over our gangways, and, as every sea 'topped,' our decks were continually, and frequently deeply, flooded. All hands took a little refreshment, for some had scarcely been below for twenty-four hours, and I had not been in bed for three nights. Although few or none of us had any idea that we should survive the gale, we did not think that our comforts should be entirely neglected, and an order was therefore given to the men to put on their best and warmest clothing, to enable them to support life as long as possible. Every man, therefore, brought his bag on deck, and dressed himself; and in the fine athletic forms which stood before me, I did not see one muscle quiver, nor the slightest sign of alarm. The officers each secured some useful instrument about them, for the purpose of observation, although it was acknowledged by all that not the slightest hope remained. And now that every thing in our power had been done, I called all hands aft, and to a merciful God offered prayers for our preservation. I thanked every one for his excellent conduct, and cautioned them, as we should in all probability soon appear before our Maker, to enter his presence as men resigned to their fate. We then all sat down in groups, and, sheltered from the wash of the sea by whatever we could find, many of us endeavoured to obtain a little sleep. Never, perhaps, was witnessed a finer scene than on the deck of my little ship, when all the hope of life had left us. Noble as the character of the British sailor is always allowed to be in cases of danger, yet I did not believe it to be possible, that, amongst forty-one persons, not one repining word should have been uttered. The officers sat about, wherever they could find a shelter from the sea, and the men lay down conversing with each other with the most perfect calmness. Each was at peace with his neighbour and all the world, and I am firmly persuaded that the resignation which was then shown to the will of the Almighty, was the means of obtaining his mercy. At about 6 P. M., the rudder, which had already received some very heavy blows, rose, and broke up the after-lockers, and this was the last severe shock that the ship received. We found by the well that she made no water, and by dark she struck no more. God was merciful to us, and the tide, almost miraculously, fell no lower. A dark heavy rain fell, but was borne in patience, for it beat down the gale, and brought with it a light air from the northward. At 9 P. M. the water had deepened to five fathoms. The ship kept off the ground all night, and our exhausted crew obtained some broken rest."—P. 76.

In humble gratitude for his deliverance, he called the place "The Bay of God's Mercy," and "offered up thanks and praises to God, for the mercy he had shown to us."

On 12th September, they had another gale of wind, with cutting showers of sleet, and a heavy sea. "*At such a moment as this,*" says Captain Lyon, "*we had fresh cause to deplore the extreme dulness of the Griper's sailing; for though almost any other vessel would have worked off this lee-shore, we made little or no progress on a wind, but remained actually pitching, forecastle under, with scarcely steerage-way,* to preserve which, I was ultimately obliged to keep her nearly two points off the wind."—P. 98.

Another storm overtook them, which is described as follows:—"Never shall I forget the dreariness of this most anxious night. Our ship pitched at such rate, that it was not possible to stand, even below; while on deck we were unable to move, without holding by ropes, which were stretched from side to side. The drift snow flew in such sharp heavy flakes, that we could not look to windward, and it froze on deck to above a foot in depth. The sea made incessant breaches quite fore and aft the ship, and the temporary warmth it gave, while it washed over us, was most painfully checked, by its almost immediately freezing on our clothes. To these discomforts were added the horrible uncertainty as to whether the cables would hold until daylight, and the conviction also, that if they failed us, we should instantly be dashed to pieces, the wind blowing directly to the quarter in which we knew the shore must lie. Again, should they continue to hold us, we feared, by the ship's complaining so much forward, that the bits would be torn up, or that she would settle down at her anchors, overpowered by some of the tremendous seas which burst over her. At dawn on the 13th, thirty minutes after four A. M., we found that the best bower cable had parted; and as the gale now blew with terrific violence from the north, there was little reason to expect that the other anchors would hold long; or, if they did, we *pitched so deeply, and lifted so great a body of water each time, that it was feared the windlass and forecastle would be torn up, or she must go down at her anchors:* although the ports were knocked out, and a considerable portion of the bulwark cut away, she could scarcely discharge one sea before shipping another, and the decks were frequently flooded to an alarming depth.

"At six A. M. all farther doubts on this particular account were at an end: for, having received two overwhelming seas, both the other cables went at the same moment, and we were left helpless, without anchors, or any means of saving ourselves, should the shore, as we had every reason to expect, be close astern. And here, again, I had the happiness of witnessing the same general tranquillity as was shown on the 1st of September. There was no outcry that the cables were gone; but my friend Mr Manico, with Mr Carr the gunner, came aft as soon as they recovered their legs, and in the lowest whisper informed me that the cables had all parted. The ship, in trending to the wind, lay quite down on her broadside, and as it then became evident that nothing held her, and that she was quite helpless, each man instinctively took his station; while the seamen at the leads, having secured themselves as well as was in their power, repeated their soundings, on which our preservation depended, with as much composure as if we had been entering a friendly port. Here, again, that Almighty power, which had before so mercifully preserved us, granted us his protection."—P. 100.

Nothing can be more interesting and moving than this narrative; it displays a great predominance of the moral sentiments and intellect, but sadly unenlightened as to the natural laws. I have quoted, in Captain Lyon's own words, his description of the Griper, loaded to such excess that she drew sixteen feet water—that she was incapable of sailing—that she was whirled round in an eddy in the Pentland Frith—and that seas broke over her which did not wet the deck of the little Snap, not half her size. Captain Lyon knew all this, and also the roughness of the climate to which he was steering; and with these outrages of the physical law staring him in the face, he proceeded on his voyage, without addressing, so far as appears from his narrative, one remonstrance to the Lords of the Admiralty on the subject of this infringement of the principles of common prudence. My opinion is, that Captain Lyon was not blind to the

errors committed in his equipment, or to their probable consequences; but that his powerful sentiment of Veneration, combined with Cautiousness and Love of Approbation (misdirected in this instance), deprived him of courage to complain to the Admiralty, through fear of giving offence; or that, if he did complain, they prevented him from stating the fact in his narrative. To the tempestuous north he sailed; and his greatest dangers were clearly referable to the very infringements of the physical laws which he describes. When the tide ebbed, his ship reached to within six feet of the bottom, and, in the hollow of every wave, struck with great violence: but she was loaded at least four feet too deeply, by his own account; so that if he had done his duty, she would have had four feet of additional water, or ten feet in all, between her and the bottom, even in the hollow of the wave—a matter of the very last importance in such a critical situation. Indeed, with four feet more water, she would not have struck; besides, if less loaded, she would have struck less violently. Again, when pressed upon a lee-shore, her incapability of sailing was a most obvious cause of danger. In short, if Providence is to be regarded as the cause of these calamities, there is no impropriety which it is possible for man to commit, that may not, on the same principles, be charged against the Creator.

But the moral law again shines forth in delightful splendour in the conduct of Captain Lyon and his crew, when in the most forlorn condition. Piety, resignation, and manly resolution, then animated them to the noblest efforts. On the principle, that the power of accommodating our conduct to the natural laws depends on the activity of the moral sentiments and intellect, and that the more numerous the faculties that are excited the greater is the energy communicated to the whole system, I would say, that while Captain Lyon's sufferings were, in a great degree, brought on by his infringements of the physical laws, his escape was greatly promoted by his obedience to the moral law. I do not mean to say that, in consequence of their prayers, Providence suspended any natural law, to favour their escape; but that the admirable moral and intellectual condition of their minds, induced partly by their religious exercises, enabled them to accommodate their conduct to the operation of the physical laws, or skilfully to manage their vessel, by doing which they survived the storm; and that Providence, in the whole occurrences, proceeded on the broad and general principle, which sends advantage uniformly as the reward of obedience, and evil as the punishment of infringement, of every particular law of creation.

That storms and tempests have been instituted for some benevolent end, may perhaps be acknowledged when their causes and effects are fully known, which at present is not the case. But even amidst all our ignorance of these, it is surprising how small a portion of evil they would occasion if men obeyed the laws which are actually ascertained. How many ships perish from being ill-constructed, or sent to sea in an old worn-out condition, and ill-equipped, through mere Acquisitiveness; and how many more, from captains and crews being chosen, who are greatly deficient in knowledge, intelligence, and morality, in consequence of which they infringe the physical laws! The London *Courier*, of 29th April 1834, contains a list of ten British brigs of war, mostly employed as packet-ships, which had foundered at sea within the preceding twelve years, owing to bad construction and bad condition; while, it is remarked, *not one American private packet-ship*, out of the vast number constantly sailing between Liverpool and New York, is recollected to have perished in that manner. Such facts show how little Nature is to blame for the calamities of shipwreck, and to how great an extent they arise from human negligence and folly. We ought to look to all these matters, before we complain of storms as natural institutions.

The last example of the mixed operation of the natural laws which I shall notice, is the result of the mercantile distress in 1825–6. I have traced the origin of that visitation to excessive activity of Acquisitiveness, and a general ascendancy of the animal and selfish faculties over the moral and intellectual powers. The punishments of these offences were manifold. The excesses infringed the moral law, and the chastisement for this, was deprivation of the tranquil steady enjoyment that flows only from the moral sentiments, with severe suffering in the ruin of fortune and blasting of hope. These disappointments produced mental anguish and depression, which occasioned an unhealthy state of the brain. The action of the brain being disturbed, a morbid nervous influence was transmitted to the whole corporeal system; bodily disease was superadded to mental sorrow; and, in some instances, the unhappy sufferers committed suicide to escape from these aggravated evils. Under the organic law, the children produced in this period of mental depression, bodily distress, and organic derangement, would inherit weak bodies, with feeble and irritable minds—a hereditary chastisement for their fathers' transgressions.

In the instances now given, we discover the various laws acting in perfect harmony, and in subordination to the moral and intellectual laws. If our ancestors had not forsaken the supremacy of the moral sentiments, such fabrics as the houses in the Old Town of Edinburgh never would have been built; and if the modern proprietors had returned to that law, and kept profligate and drunken inhabitants out of them, the conflagration might still have been avoided. In the case of the ships, we see that wherever intellect and morality had been relaxed, and animal motives permitted to assume the supremacy, evil had speedily followed; and that where the higher powers were called forth, safety had been obtained. And, finally, in the case of the merchants and manufacturers, we trace their calamities directly to placing Acquisitiveness and Self-Esteem above intellect and moral sentiment.

Formidable and appalling, then, as these punishments are—yet, when we attend to the laws under which they occur, and perceive that the object and legitimate operation of every one of those laws, when observed, is to produce happiness to man, and that the punishments have in view the sole object of forcing him back to this happiness—we cannot, under the supremacy of the moral sentiments and intellect, fail to bow in humility before them, as at once wise, benevolent, and just.

CHAPTER VIII.

INFLUENCE OF THE NATURAL LAWS ON THE HAPPINESS OF INDIVIDUALS.

The objection considered, that although, when viewed abstractly, the natural laws appear beneficent and just, yet they are undeniably the cause of extensive, severe, and unavoidable suffering to individuals—Their justice and benevolence, in reference to individuals, illustrated by imaginary cases of the suspension of various physical, organic, and social laws.

A FORMIDABLE objection has often been stated against my views of the Natural Laws—namely, that although, when considered abstractly, they appear beneficent and just, yet, when applied to individuals, they are undeniably the causes of extensive, severe, and unavoidable suffering; so that while, theoretically, the moral horizon appears to be cleared up, nevertheless, practically and substantially, the obscurity and intricacy remain undiminished. In answer, I have to observe, that, as the whole is but an aggregate of all the parts—if any natural institution, when viewed in its operation in regard to the race, is found to be just and beneficent, it cannot well be cruel and unjust to individuals, who are the component parts of that whole; and this, accordingly, I humbly conceive to admit of something approaching to demonstration. The form

of a dialogue is perhaps the best adapted for illustrating the subject; and if, in imitation of some of the classic fabulists, we suppose the suffering individuals to make an appeal to Jupiter, the law of gravitation may be exemplified as follows.

It happened in a remote period, that a slater slipped from the roof of a high building, in consequence of a stone of the ridge having given way as he walked upright along it; he fell to the ground, had a leg broken, and was otherwise severely bruised. As he lay in bed suffering severe pain from his misfortune, he addressed Jupiter in these words: "O Jupiter, thou art a cruel god; for thou hast made me so frail and imperfect a being, that I had not faculties to perceive my danger, nor power to arrest my fall when its occurrence showed how horrible an evil awaited me. It were better for me that I had never been." Jupiter, graciously bending his ear, heard the address, and answered: "Of what law of mine dost thou complain?" "Of the law of gravitation," replied the slater; "by its operation, the slip which my foot made upon the stone, which, unknown to me, was loose, precipitated me to the earth, and crushed my body, never calculated to resist such violence." "I restore thee to thy station on the roof," said Jupiter; "I heal all thy bruises; and to convince thee of my benevolence, I suspend the law of gravitation as to thy body and all that is related to it: art thou now content?"

The slater, in deep emotion, offered up gratitude and thanks, and expressed the profoundest reverence for so just and beneficent a deity. In the very act of doing so, he found himself in perfect health, erect upon the ridge of the roof; and, rejoicing, gazed around. His wonder at so strange an event having at last abated, he endeavoured to walk along the ridge to arrive at the spot which he intended to repair. But the law of gravitation was suspended, and his body did not press upon the roof. There being no pressure, there was no resistance, and his legs moved backwards and forwards in the air without any progress being made by his body. Alarmed at this occurrence, he stooped, seized his trowel, lifted it full of mortar, and made the motion of throwing it on the slates; but the mortar, freed from the trowel, hung in mid-air—the law of gravitation was suspended as to it also. Nearly frantic with terror at such unexpected novelties, he endeavoured to descend in order to seek relief; but the law of gravitation was suspended as to his body, and it hung poised at the level of the ridge, like a balloon in the air. He tried to fling himself down, to get rid of the uneasy sensation, but his body floated erect, and would not move downwards.

In an agony of consternation, he called once more upon Jupiter. The god, ever kind and compassionate, heard his cry and pitied his distress; and asked, "What evil hath befallen thee now, that thou art not yet content? Have I not suspended, at thy request, the law which made thee fall? Now thou art safe from bruises and from broken limbs; why, then, dost thou still complain?"

The slater answered: "In deep humiliation, I acknowledge my ignorance and presumption; restore me to my couch of pain, but give me back the benefits of thy law of gravitation."

"Thy wish is granted," said Jupiter in reply. The slater in a moment lay on his bed of sickness, endured the castigation of the organic law, was restored to health, and again mounted to the roof that caused his recent pain. He thanked Jupiter anew, from the depths of his soul, for the law of gravitation with its numberless benefits; and applied his faculties to study and obey it during the remainder of his life. This study opened up to him new and delightful perceptions of the Creator's beneficence and wisdom, of which he had never even dreamed before; and these views so excited and gratified his moral and intellectual powers, that he seemed to himself to have entered on a new existence. Ever afterwards he observed the law of gravitation; and, in a good old age, when his organic frame was fairly worn out by natural decay, he transmitted his trade, his house, and much experience and wisdom, to his son, and died thanking and blessing Jupiter for having opened his eyes to the true theory of his scheme of creation.

The attention of Jupiter was next attracted by the loud groans and severe complaints of a husbandman, who addressed him thus: "O Jupiter, I lie here racked with pain, and pass the hours in agony without relief. Why hast thou created me so miserable a being?" Jupiter answered: "What aileth thee, and of what institution of mine dost thou complain?" "The earth which thou hast made," replied the husbandman, "will yield me no food, unless I till and sow it, and no increase, except it be watered by thy rain. While I guided my plough in obedience to thy law, thy rain came, and it fell not only on the earth, but also on me; it penetrated through the clothes which I had been obliged to make for myself, because thou hadst left me naked; it cooled my skin, which thou hadst rendered delicate and sensible; it disordered all the functions of my body; and now rheumatic fever parches my blood, and agonises every muscle. O Jupiter, thou art not a kind father to thy children."

Jupiter heard the complaint, and graciously replied: "My physical and organic laws were established for thy advantage and enjoyment, and thou hast grievously infringed them; the pain thou sufferest is intended to reclaim thee to thy duty, and I have constituted thy duty the highest joy of thy existence; but say, what dost thou desire?"

The husbandman answered: "What, O Jupiter, signify the purposes of thy laws to me, when thou hast denied me faculties competent to discover and obey them? Frail and fallible as I am, they cause me only pain; deliver me from their effects, and I ask no other boon."

"Thy prayer is granted," said Jupiter: "I restore thee to perfect health; and, for thy gratification, I suspend the laws that have offended thee. Henceforth water shall not wet thee or thine, thy skin shall feel cold no more, and thy muscles shall never ache. Art thou now content?"

"Most gracious Jupiter," said the husbandman, "my soul is melted with deepest gratitude, and I now adore thee as supremely good."

While he spoke, he found himself afield behind his team, healthful and vigorous, jocund and gay, and again blessed Jupiter for his merciful dispensation. The season was spring, when yet the chill blast of the north, the bright blaze of a powerful sun, and passing showers of rain, interchanged in quick and varying succession. As he drove his plough along, the rain descended, but it wet not *him*; the sharp winds blew, but they chilled no fibre in *his* frame; the flood of heat next poured upon his brow, but no sweat started from its pores: the physical and organic laws were suspended as to him.

Rejoicing in his freedom from annoyance and pain, he returned gladly home to meet his smiling family, after the labours of the day. It had been his custom in the evening to put off the garments in which he had toiled, to clothe himself in fresh linen, to sup on milk prepared by his wife with savoury fruits and spices, and to press his children to his bosom with all the fervour of a parent's love; and he used to feel a thrill of pleasure pervading every nerve, as they acknowledged and returned the affectionate embrace.

He looked to find the linen clean, cool, delicately dressed, and lying in its accustomed place; but it was not there. He called to his wife to fetch it, half chiding her for neglect. With wonder and dismay depicted in every feature, she narrated a strange adventure. With the morning sun she had risen to accomplish her wonted duty, but although the water wetted every thread that clothed other individuals, it moistened not a fibre of his. She boiled it over a powerful fire, and applied every means that intellect, stimulated by affection, could devise; but the result was still the same: the water glided over his clothes

and would not wet them. "The physical law," said the husband within himself, "is suspended as to me; henceforth water wetteth not me or mine." He said no more, but placed himself at table, smiling over his lovely family. He lifted the youngest child upon his knee, a girl just opening in her bloom—pressed her to his bosom, and kissed her ruddy cheek. But he started when he experienced no sensation. He saw her with his eyes, and heard her speak, but had no *feeling* of her presence. His knee was as stone, his bosom as marble, and his lips as steel; no *sensation* penetrated through his skin. He placed her on the floor, looked wistfully on her form, graceful, vivacious, and instinct with love; and, as if *determined* to enjoy the well-remembered pleasure now withheld, he clasped her to his bosom with an embrace so ardent that she screamed with pain. Still he was all adamant: no sensation reached his mind. Heaving a deep sigh, he sent her away, and again the thought entered the very depths of his soul—"The organic law is suspended as to me!" Recollecting well the sweet gratifications of his evening meal, he seized a bowl, and delicately began to sip, exciting every papilla of the tongue to catch the grateful savour. But no savour was perceptible; the liquid glided over his gustatory organs like quicksilver over the smooth surface of a mirror, without impression, and without leaving a trace behind. He now started in horror, and his spirit sank within him when he thought that thenceforth he should live without sensation. He rushed into the fields, and called aloud on Jupiter, "O Jupiter, I am the most miserable of men; I am a being without sensation. Why hast thou made me thus?"

Jupiter heard his cry, and answered: "I have suspended the physical and organic laws, to which thou ascribest thy fever and thy pain; henceforth no pang shall cause thy nerves to shrink, or thy muscles to quiver: why, then, art thou thus unhappy, and why discontented with thy new condition?"

"True, O Jupiter," replied the husbandman; "but thou hast taken away from me sensation: I no longer feel the grateful breath of morn fanning my cheek as I drive my team afield; the rose diffuses its fragrance for me in vain; the ruddy grape, the luscious fig, and the cooling orange, to me are now savourless as adamant or air; my children are as stones: O Jupiter, I am utterly wretched; I am a man without sensation!"

"Unhappy mortal," replied the god, "how can I afford thee satisfaction? When I gave thee nerves to feel, and muscles to execute the purposes of thy mind—when I bestowed on thee water to refresh thy palate, and made thy whole frame one great inlet of enjoyment—thou wert not content. I made thy nerves liable to pain, to warn thee of thy departures from my laws. The rain that was sent fell to fructify and refresh the earth, and not to injure thee. I saw thee, while the showers descended, stay abroad, regardless of its influence on thy frame. The northern blast received from me its piercing cold, to warn thee of its effects; and yet I saw thee, wet and shivering, stand in its course, regardless of its power. In the voice of the storm I spake to thy understanding, but thou didst not comprehend. The fever that parched thy blood was sent to arrest thee in thy departures from my organic laws. If I restore to thee my institutions, thou mayest again forget my ways, and in misery impeach my justice."

"O most gracious Jupiter," cried the husbandman, "now I see thy power and wisdom, and my own folly and presumption. I accept thy laws, and gratefully acknowledge that, even in the chastisements they inflict, they are beneficent. Restore to me the enjoyments of sensation; permit me once more to reap the advantages that flow from the just uses of my nerves and muscles, and I bow with resignation to the punishment of misapplying them." Jupiter granted his request. His fever and pains returned, but by medicine were relieved. He slowly recovered health and strength, and never afterwards embraced his children, or enjoyed a meal, without pouring forth a deeper offering of gratitude than he had done before. He was now instructed concerning the source of his enjoyments; he studied the laws of his nature and obeyed them; and when he suffered for occasional deviations, he hastened back to the right path, and never again underwent so severe a punishment.

Just as the husbandman resumed his wonted labours, a new voice was heard calling loudly to Jupiter for relief. It proceeded from a young heir writhing in agony, who cried, "O Jupiter, my father committed debaucheries, for which my bones are pierced with suffering; gout teareth my flesh asunder; thou actest not justly in punishing me for his transgressions: deliver me, O Jupiter, or renounce thy character for benevolence and justice." "Thou complainest of my law of hereditary descent?" said Jupiter; "hast thou derived from thy father any other quality besides liability to gout?" "O Jupiter," replied the sufferer, "I have derived nerves that feel sweet pleasure when the gout ceaseth its gnawing, muscles that execute the purposes of my will, senses that are inlets of joy, and faculties that survey and rejoice in thy fair creation: But why didst thou permit gout to descend from him who sinned, to me?"

"Short-sighted mortal," said Jupiter, "thy father was afflicted because he infringed my institutions; by my organic law, thou hast received a frame constituted as was that of thy father when thy life commenced; the delicate sensibility of his nerves transmitted the same susceptibility to thine; the vigour of his muscles has been transferred into thine; and by the same law, the liability to pain that existed in his bones from debauchery, constitutes an inseparable element of thine: If this law afflict thee, speak the word, and I shall suspend it as to thee."

"Bountiful Jupiter!" exclaimed the sufferer; "but tell me first—if thou suspendest thy law, shall I lose all that I inherited by it from my father; vigour of nerves, muscles, senses, and faculties, and all that constitutes my delight when the gout afflicteth me not?" "Assuredly thou shalt," said Jupiter: "but thy body shall be free from pain."

"Forbear, most bounteous deity," replied the sufferer; "I gratefully accept the gift of thy organic laws, with all their chastisements annexed: But say, O Jupiter—if this pain was inflicted on my father for transgressing thy law, may it not be lessened or removed if I obey?"

"The very object of my law," said Jupiter, "is that it should. Hadst thou proceeded as thy father did, thy whole frame would have become one great centre of disease. The pain was transmitted to thee to guard thee by a powerful monitor from pursuing his sinful ways, that thou mightst escape this greater misery. Adopt a course in accordance with my institutions, and then thy pain shall abate, and thy children shall be free from its effects."

The heir expressed profound resignation to the will of Jupiter, blessed him for his organic law, and entered upon a life of new and strict obedience. His pain in time diminished, and his enjoyments increased. Ever after he was grateful for the law.

A feeble voice next reached the vault of heaven: it was that of a child, sick and in pain. "What is thy distress, poor boy," said Jupiter, "and of what dost thou complain?" Half drowned in sobs, the feeble voice replied: "I suffer under thy organic law. A father's sickness, and the disorders of a mother's frame, have been transmitted in combined intensity to me. I am all over exhaustion and pain." "Hast thou received no other gift," inquired Jupiter, "but sickness and disease—no pleasure to thy nerves, thy muscles, or thy mental powers?" "All are so feeble," replied the child, "that I exist, not to enjoy, but only to suffer." "Poor victim," said Jupiter, "my organic law shall soon deliver thee, and I will take thee to myself." The organic law instantly operated; the body of the child lay a lifeless mass, and suffered no more; its spirit dwelt with Jupiter.

The next prayer was addressed by a merchant struggling on the Mediterranean waves, and near sinking in their foam. "What evil dost thou charge against me," said Jupiter, "and what dost thou require?"

"O Jupiter," answered the supplicant, "I sailed from Tyre to Rome in a ship, which thou seest on fire, loaded with all the merchandise acquired by my previous toils. As I lay here at anchor off the port of Syracuse, whither business called me, a sailor, made by thee, thirsted after wine, stole it from my store, and, in intoxication, set my ship and goods on fire; and I am now plunged in the waves to die by drowning, to escape the severer pain of being consumed by fire. Why, if thou art just, should the innocent thus suffer for the guilty?"

"Thou complainest, then," said Jupiter, "of my social law? Since this law displeaseth thee, I restore thee to thy ship, and suspend it as to thee."

The merchant, in a moment, saw his ship entire; the blazing embers restored to vigorous planks; himself and all his crew sound in limb, and gay in mind, upon her deck. Joyous and grateful, he addressed thanksgiving to the god, and called to his crew to weigh the anchor, set the sails, and turn the helm for Rome. But no sailor heard him speak, and no movement followed his words. Astonished at their indolence and sloth, he cried in a yet louder voice, and inquired why none obeyed his call. But still no answer was given. He saw the crew move and speak, act and converse; but they seemed not to observe *him*. He entreated, remonstrated, and upbraided; but, notwithstanding all his efforts, could obtain no reply. All seemed unconscious of his presence. Unconscious of his presence! The awful thought rushed into his mind, that the social law was suspended as to him. He now saw, in all its horror, the import of the words of Jupiter, which before he had not fully comprehended. Terrified, he seized a rope, and set a sail. Every physical law was in force, and obeyed his will. The sail filled, and strained forward from the mast. He ran to the helm—it obeyed his muscles, and the ship moved as he directed it. But its course was short: the anchor was down, and stopped its progress in the sea. He lowered the sail, seized a handspoke, and attempted to weigh; but in vain. The strength of ten men was required to raise so ponderous an anchor. Again he called to his crew; but again he found that the social law was suspended as to him: he was absolved thenceforth from all suffering caused by the misconduct of others, but he was cut off from every enjoyment and advantage derivable from their assistance.

In despair he seized the boat, rowed it into the port of Syracuse, and proceeded straight to his commercial correspondent there, to beg his aid in delivering him from the indolence of his crew. He saw his friend, addressed him, and told him of his fruitless endeavours to leave the anchorage; but his friend seemed quite unconscious of his presence. He did not even look upon him, but proceeded in business of his own, with which he seemed entirely occupied. The merchant, wearied with fatigue, and almost frantic with alarm, hurried to a tavern on the quay, where he used to dine; and, entering, called for wine to recruit his exhausted strength. But the servants seemed unconscious of his presence; no movement was made; and he remained as if in a vast solitude, amidst large companies of merchants, servants and assistants, who all bustled in active gaiety, each fulfilling his duty in his own department. The merchant now comprehended all the horrors of his situation, and called aloud to Jupiter—"O Jupiter, death in the waves, or by consuming flame, were better than the life thou hast assigned to me. Let me die, for my cup of misery is full beyond endurance; or restore me the enjoyments of thy social law, and I shall cease to complain of the pains which it inflicts."

"But," said Jupiter, "if I restore to thee my social law, thy ship will be consumed, thou and thy crew will escape in a boat, but thou shalt be a very beggar; and, in thy poverty, thou wilt upbraid me for dealing unjustly by thee."

"O bountiful Jupiter," replied the merchant, "I never knew till now what enjoyments I owed to thy social law; how rich it renders me, even when all else is gone; and how poor I should be, with all the world for a possession, if denied its blessings. True, I shall be poor; but my nerves, muscles, senses, propensities, sentiments, and intellect, will be left me: now I see that employment of these is the only pleasure of existence; poverty will not cut me off from exercising these powers in obedience to thy laws, but will rather add new motives exciting me to do so. Under thy social law, will not the sweet voice of friendship cheer me in poverty; will not the aid of kindred and of my fellow-men soothe the remainder of my days? and, besides, now that I see thy designs, I shall avoid employing my fellow-men in situations unsuitable to their talents, and thereby escape the penalties of infringing thy social law. Most merciful Jupiter, restore to me the benefit of all thy laws, and I accept the penalties attached to their infringement." His request was granted; afterwards he made Jupiter's laws and the nature of man his study; he obeyed those laws, became moderately rich, and found himself happier than he had ever been in his days of selfishness and ignorance.

Jupiter was assailed by many other prayers from unfortunate sufferers under the effects of infringement of his laws; but instead of hearing each in endless succession, he assembled his petitioners, and introduced to them the slater, the husbandman, the young heir, and the merchant, whom he requested to narrate their knowledge and experience of the natural laws; and he intimated, that if, after listening to their account, any petitioner should still be dissatisfied with his condition, he would suspend for him the particular law which caused the discontent. But no application followed. Jupiter saw his creatures employ themselves with real earnestness in studying and conforming to his institutions, and ever afterwards they offered up to him only gratitude and adoration for his infinite goodness and wisdom.

CHAPTER IX.

ON THE RELATION BETWEEN SCIENCE AND SCRIPTURE.

Science, being an exposition of the Creator's works, cannot be at variance with a correctly interpreted revelation of his will—Archbishop Whately and Professor Sedgwick quoted on the impropriety of testing science by Scripture—In all ages, new doctrines have been branded as impious—Christianity itself no exception—Phrenology may be expected to lead to the abandonment of prevailing interpretations of some parts of Scripture—Bearing of Phrenology upon the realisation of practical Christianity—New direction to the pursuits of the religious instructors of mankind anticipated—History demonstrates that Christianity, while unaided by arts and science, was corrupted itself, and had little influence in improving the human race—The inefficacy of Scripture alone to produce moral and rational conduct, illustrated by a narrative of the persecutions for witchcraft in the fifteenth, sixteenth, and seventeenth centuries—Necessity for using all our lights in searching for the meaning of Scripture—Illustrative quotations from Bishop Taylor, on the obscurity of Scripture, the corruptions which the text has undergone, and the difficulty of translating it accurately—Another illustration cited from the Rev. Dr Fraser—Consideration of the objection, That, according to the doctrine of the natural laws, prayer must be irrational and useless—This objection grounded on the false assumption that the object of prayer is to influence the Deity—Decision of the General Assembly of the Church of Scotland, that prayer has no effect but upon the mind of the supplicant—This taught by Drs Leechman and Blair—Opinion of Lord Kames on prayer, and on public worship—The natural effects of great size and activity in the moral organs mistaken by some persons for the direct influence of the Holy Spirit in causing pure and religious emotions to spring up in the mind.

SINCE the first edition of this work was published, objections have been stated that the views maintained in it are at variance with Revelation, and hostile to

the interests of religion. It is gratifying, however, to know, that these objections have not been urged by any individual of the least eminence in theology, or countenanced by persons of enlarged views of Christian doctrine. On the contrary, many excellent individuals, of unquestionable piety and benevolence, have widely recommended this work as containing the philosophy of practical Christianity, and have aided in its distribution. It is therefore rather on account of the interest of the inquiry itself, than from any feeling of the necessity of a defence, that I enter into the following discussion of the relation between Scripture and Science; and as in a question of this nature authorities are entitled to great weight, I shall commence by citing the opinion of one of the most learned, talented, and accomplished divines of the present day, the Archbishop of Dublin.

A few years ago, a Professorship of Political Economy was founded in Oxford by Mr Drummond, with a novel constitution. The professor holds his office for only five years, and it is a condition that one lecture, at least, shall be published every year. Dr Whately, now Archbishop of Dublin, was the second individual elected to the chair, and, in compliance with the statute, he published, in 1831, eight lectures on the science. They are introductory in their character, being intended chiefly to dispel popular prejudices against political economy, and to unfold its objects. They contain several admirable observations, calculated to remove prejudices against new truths, and directly applicable to the subject of the present work. On this account I present them to the reader.

"It has been my first object," says Dr Whately, in his preface, "to combat the prevailing prejudices against the study, and especially those which represent it as unfavourable to religion."

"In proportion," he continues, "as any branch of study leads to important and useful results—in proportion as it gains ground in public estimation—in proportion as it tends to overthrow prevailing errors—in the same degree it may be expected to call forth angry declamation from those who are trying to despise what they will not learn, and wedded to prejudices which they cannot defend. Galileo probably would have escaped persecution, if his discoveries could have been disproved, and his reasonings refuted." "That political economy should have been complained of as hostile to religion, will probably be regarded a century hence (should the fact be then on record) with the same wonder, almost approaching to incredulity, with which we, of the present day, hear of men sincerely opposing, on religious grounds, the Copernican system. But till the advocates of Christianity shall have become universally much better acquainted with the true character of their religion, than, universally, they have ever yet been, we must always expect that every branch of study, every scientific theory that is brought into notice, will be assailed on religious grounds, by those who either have not studied the subject, or who are incompetent judges of it; or again, who are addressing themselves to such persons as are so circumstanced, and wish to excite and to take advantage of the passions of the ignorant. *Flectere si nequeo superos, Acheronta movebo.* Some there are who sincerely believe that the Scriptures contain revelations of truths the most distinct from religion. Such persons procured, accordingly, a formal condemnation (very lately rescinded) of the theory of the earth's motion, as at variance with Scripture. In Protestant countries, and now, it seems, even in Popish, this point has been conceded; but that the erroneous principle—that of appealing to revelation on questions of physical science—has not yet been entirely cleared away, is evident from the objections which most of you probably may have heard to the researches of geology. The objections against astronomy have been abandoned, rather, perhaps, from its having been made to appear, that the Scripture accounts of the phenomena of the heavens may be reconciled with the conclusions of science, than from its being understood that Scripture is not the test by which the conclusions of science are to be tried." "It is not a sign of faith—on the contrary, it indicates rather a want of faith, or else a culpable indolence—to decline meeting any theorist on his own ground, and to cut short the controversy by an appeal to the authority of Scripture. For, if we really are convinced of the truth of Scripture, and consequently of the falsity of any theory (of the earth, for instance), which is really at variance with it, we must needs believe that that theory is also at variance with observable phenomena; and we ought not therefore to shrink from trying the question by an appeal to these." "God has *not* revealed to us a system of morality, such as would have been needed for a being who had no other means of distinguishing right and wrong. On the contrary, the inculcation of virtue and reprobation of vice in Scripture, are in such a tone as seems to presuppose a natural power, or a capacity for acquiring the power, to distinguish them. And if a man, denying or renouncing all claims of natural conscience, should practise without scruple every thing he did not find expressly forbidden in Scripture, and think himself not bound to do any thing that is not there expressly enjoined, exclaiming at every turn—

'Is it so nominated in the Bond?'

he would be leading a life very unlike what a Christian's should be. Since, then, we are bound to use our own natural faculties in the search after all truth that is within the reach of those faculties, most especially ought we to try, by their own proper evidence, questions which form no part of revelation properly so called, but which are incidentally alluded to in the Sacred Writings. If we appeal to the Scriptures on any such points, it should be merely as to an ancient book, not in reference to their sacred character; in short, not as Scripture."—Pp. 29–36.

These observations are highly philosophical and worthy of attention; the more so that their author is a divine, and now a high dignitary in the church of Ireland.

The science of geology, also, has been fiercely attacked as hostile to religion, and been ably defended by the Rev. Adam Sedgwick, one of its most eminent professors. In the Appendix to his Discourse on the Studies of the University of Cambridge, he has published some valuable and instructive notes, in the last of which he reproves, with great eloquence and severity, the bigoted and ignorant individuals who "dare to affirm that the pursuits of natural science are hostile to religion." He also chastises those writers who have endeavoured to falsify the facts and conclusions of geology, for the purpose of flattering the religious prejudices of the public. "There is another class of men," says he, "who pursue geology by a nearer road, and are guided by a different light. Well-intentioned they may be; but they have betrayed no small self-sufficiency, along with a shameful want of knowledge of the fundamental facts they presume to write about: hence they have dishonoured the literature of this country by *Mosaic Geology*, *Scripture Geology*, and other works of cosmogony with kindred titles, wherein they have overlooked the aim and end of revelation, tortured the book of life out of its proper meaning, and wantonly contrived to bring about a collision between natural phenomena and the word of God."—P. 150.

The following observations of the same author are exceedingly just:—"A Brahmin crushed with a stone the microscope that first showed him living things among the vegetables of his daily food. The spirit of the Brahmin lives in Christendom. The bad principles of our nature are not bounded by *caste* or climate; and men are still to be found, who, if not restrained by the wise and humane laws of their country, would try to stifle by personal violence, and crush by brute force, every truth not hatched among their own conceits, and confined within the narrow fences of their own ignorance.

"We are told by the wise man *not to answer a fool according to his folly*; and it would indeed be a vain

and idle task to engage in controversy with this school of false philosophy—to waste our breath in the forms of exact reasoning unfitted to the comprehension of our antagonists—to draw our weapons in a combat where victory could give no honour. Before a geologist can condescend to reason with such men, they must first learn geology.* It is too much to call upon us to scatter our seed on a soil at once both barren and unreclaimed—it is folly to think that we can in the same hour be stubbing up the thorns and reaping the harvest. All the writers of this school have not indeed sinned against plain sense to the same degree. With some of them, there is perhaps a perception of the light of natural truth, which may lead them after a time to follow it in the right road: but the case of others is beyond all hope from the powers of rational argument. Their position is impregnable while they remain within the fences of their ignorance, which is to them as a wall of brass: for (as was well said, if I remember right, by Bishop Warburton, of some bustling fanatics of his own day) there is no weak side of common sense whereat we may attack them. If cases like these yield at all, it must be to some treatment which suits the inveteracy of their nature, and not to the weapons of reason. As psychological phenomena, they are, however, well deserving of our study; teaching us, among other things, how prone man is to turn his best faculties to evil purposes—and how, at the suggestions of vanity and other bad principles of his heart, he can become so far deluded, as to fancy that he is doing honour to religion, while he is sacrificing the common charities of life, and arraigning the very workmanship of God."—Pp. 151, 152.

After the examples which these passages afford, of misdirected zeal for religion leading to opposition against the most useful and interesting investigations, we need not be surprised that the doctrine of the natural laws has met with a similar reception. The charge is made that it leads to infidelity, and that its principles are irreconcileable with Scripture.

It may be useful to observe, that in all ages new doctrines have been branded as impious, and that Christianity itself has offered no exception to this rule. The Greeks and Romans charged Christianity with "impiety and novelty." In Cave's *Primitive Christianity*, we are informed that "the Christians were every where accounted a pack of *Atheists*, and their religion the *Atheism*." They were denominated "mountebank impostors," and "men of a desperate and unlawful faction." They were represented as "destructive and pernicious to human society," and were accused of "sacrilege, sedition, and high treason." The same system of misrepresentation and abuse was practised by the Roman Catholics against the Protestants, at the Reformation: "Some called their dogs Calvin; and others transformed Calvin into Cain." In France, "the old and stale calumnies, formerly invented against the first Christians, were again revived by Democharés, a doctor of the Sorbonne, pretending that all the disasters of the state were to be attributed to Protestants alone."

If the views of human nature expounded in this work be untrue, the proper answer to them is a demonstration of their falsity. If they be true, they are mere enunciations of the institutions of the Creator; and it argues superstitious, and not religious feelings, to fear evil consequences from the knowledge of what Divine Wisdom has appointed. The argument that the *results* of the doctrine are obviously at variance with Scripture, and that *therefore* the doctrines *cannot be true*, is not admissible; "for," in the words of Dr Whately, "if we really are convinced of the truth of Scripture, and consequently of the falsity of any theory (of the earth, for instance) which is really at variance with it, we must needs believe that that theory is also at variance with observable phenomena; and we ought not therefore to shrink from trying the question by an appeal to these."

Galileo was told, from high authority in the church, that his doctrine of the revolution of the globe was obviously at variance with Scripture, and that therefore it *could not be true;* but as his opinions were founded on palpable facts, which could be neither concealed nor denied, they necessarily prevailed. If there had been a real opposition between Scripture and nature, the only result would have been a demonstration that Scripture in this particular instance was erroneously interpreted; because the evidence of physical nature is imperishable and insuperable, and cannot give way to any authority whatever. The same consequence will evidently happen in regard to Phrenology. If any fact in physiology does actually and directly contradict any interpretation of Scripture, it is not difficult to perceive which must yield. The human understanding cannot resist evidence founded on observation; and even if it did resist, Nature would not bend, but continue to operate in her own way in spite of the resistance, and a new and more correct interpretation of Scripture would ultimately become inevitable. Opposition between science and revelation I sincerely believe to be impossible, when the facts in nature are correctly observed, and divine truth is correctly interpreted: but I put the case thus strongly to call the serious attention of religious persons to the mischievous consequences to religion, of rashly denouncing, as adverse to revelation, any doctrine professing to be founded on natural facts. Every instance in which the charge is made falsely, is a gross outrage against revelation itself, and tends to lead men to regard Scripture as an obstacle to the progress of science and civilisation, instead of being a system of divine wisdom, in harmony with all natural truth.

All existing interpretations of Scripture have been adopted in ignorance of the facts, that every person in whose brain the animal organs preponderate greatly over the moral and intellectual organs, has a native and instinctive tendency to immoral conduct, and *vice versa;* and that the influence of organisation is fundamental—that is to say, that no means are yet known by which an ill-formed brain may be made to manifest the moral and intellectual faculties with the same success as a brain of an excellent configuration. An individual possessing a brain like that of Melancthon, represented on p. 40, is naturally adapted to receive, comprehend, and practise the precepts of Christianity; whereas it will be found extremely difficult to render persons with brains like those of Hare, p. 40, Pope Alexander VI., p. 41, Vitellius, p. 42, or the Carib, p. 48, practical Christians. Only phrenologists, who have observed, for many years, in various situations, and under different influences, the conduct of individuals constituted in these different ways, can conceive the importance of the relative developement of the cerebral organs; but after it is discovered, the inferences from it are irresistible. The religious teachers of mankind are yet ignorant of the most momentous fact which nature presents in regard to the moral and intellectual improvement of the race. I have heard it said that Christianity affords a better and a more instantaneous remedy for human depravity, than improvement of the cerebral organisation; because the moment a man is penetrated by the love of God in Christ, his moral and religious affections become far stronger and more elevated, whatever his brain may be—than those of any individual whatever without that love, however noble his cerebral developement, and however much he may be instructed in natural knowledge. I observe, however, that in this life a man cannot become penetrated by the love of God, except through the aid of sound and efficient material organs. This fact is directly proved by cases of madness and idiocy. Disease in the organs is the cause of insanity, and mere deficiency of their size is one and an invariable cause of idiocy. See figure of idiot head on p. 51. In neither of these states can the mind receive the advantages of the Christian doctrine. It is therefore obvious

* This remark is peculiarly applicable to those who oppose Phrenology and the doctrine of the Natural Laws. Such of them as are serious, do so in profound ignorance of the whole subject.

that the power of receiving and appreciating Christianity itself is modified by the condition of the brain; and I venture to affirm, that the influence of the organs does not terminate with these extreme cases, but operates in all circumstances and in every individual, aiding or impeding the reception and efficacy even of revelation. If this were not the case, there would be in operation a power capable of influencing the human mind, during life, without the intervention of material organs; and, accordingly, many excellent persons believe this to be scriptural truth, and matter of experience also. But those who entertain this opinion are not instructed in the functions of the brain; they are not aware of the universally admitted facts, which establish that while life continues the mind cannot act or be acted upon except through the medium of organs; nor do they bring forward one example of idiots and madmen being rendered pious, practical, and enlightened Christians by this power, notwithstanding the state of their brains. Cases indeed occur in which religious feelings co-exist with partial idiocy or partial insanity; but in them the organs of these sentiments will be discovered to be well developed—and if the feelings be sane, the organs will be found unaffected by disease.

Serious persons who are offended by this doctrine, constantly forget that the reciprocal influence of the mind and brain is not of man's devising, but that God himself established it, and conferred on the organs those qualities which He saw to be necessary for executing the purposes to which He had appointed them. If the statements now made be unfounded, I shall be the first to give them up; but, believing them to be true, I cannot avoid adhering to them. When, therefore, I add, that I have never seen an individual with large organs of the animal, and small organs of the moral and intellectual, faculties, whose conduct was steadily moral, under the ordinary temptations of life, however high his religious professions might be, I merely state a fact which the Creator himself has decreed to exist. Indeed, I have seen several striking instances of persons, who, after making a great profession of religion, ultimately disgraced it: and I have observed that in all these instances, without one exception, the organs of the inferior propensities were large, and those of one or more of the moral sentiments deficient; and I am convinced that the same conclusion, after sufficiently accurate and extensive observations, will force itself upon all candid and reflecting minds.

My inference, therefore, is, that the Divine Spirit, revealed in Scripture as a power influencing the human mind, invariably acts in harmony with the laws of organisation; because the latter, *as emanating from the same source*, can never be in contradiction with the former; and because a well-constituted brain is a condition essential to the existence of Christian dispositions. If this be really the fact, and if the constitution of the brain be in any degree regulated by the laws of physiology, it is impossible to doubt that a knowledge of the natural laws is destined to exercise a vast influence in rendering men capable of appreciating and practising Christianity. The *manner* in which it will do so, is explained in Dr Combe's treatise on "Physiology applied to Health and Education," already alluded to. That work contains an exposition of the laws of action of the brain, and its connexion with, and influence on, the rest of the system, and therefore its relations generally to human improvement.

An admirable portion of Christianity is that in which the supremacy of the moral sentiments is explained and enforced as a practical doctrine. Love thy neighbour as thyself; all mankind are thy neighbours; blessed are the meek and the merciful; love those that hate you and despitefully use you; seek that which is pure, and holy, and of good report;—these are precepts to be found in Scripture. Now, I have endeavoured to show, that the human faculties, and external nature, are so constituted as to admit of such precepts being reduced to practice on earth—an idea which it has rarely entered into the heart of man to conceive as a possibility without miraculous interference. If the philosophy now explained shall carry home to rational men the conviction that the order of nature fairly admits of the practical exemplification of these precepts by the developement of its inherent resources, a new direction must necessarily be given to the pursuits of the religious instructors of mankind. Christianity, after its establishment by Constantine, was left to exert its own influence over the Roman Empire, unaided by printing and natural science. It is recorded in history, that it did not suffice to arrest the decline of morals and the downfall of the State, but was itself corrupted and perverted. In the dark ages which followed the subversion of that Empire, it was again left, unaided by human learning, to do its best for the regeneration of mankind; and it became a vast system of superstition. Nor was it till after the invention of printing, and the revival of letters, that the barbarous superstructures which had been raised on the simple foundations of the Gospel were cleared away. But the period from the revival of letters to the present day, has been the age of scholastic learning, as contradistinguished from that of philosophy and science. Christianity stands before us, therefore, at present, as interpreted by men who knew extremely little of the science of either external nature or the human mind. They have conceived it to be a system of spiritual influences, of internal operations on the soul, and of repentant preparation for another world, rather than an exposition of pure and lofty principles inherent in human nature itself, and capable of being largely developed and rendered practical in this world.

It is a common accusation against philosophy, that the study of it renders men infidels; and this alleged fact is brought forward as a proof that human nature is corrupt, blind, and perverse, turning what ought to be its proper food into mortal poison. But if this were really a well-founded charge, the conclusion which I would draw from it would be, that there must be essential errors in the popular interpretations of revelation, when the effect of a knowledge of nature on the mind is to lead to infidelity. Science is of modern growth; and, down to the present hour, the mass of Christians in every country have embraced their faith without the possibility of comparing it with the revelation of the Divine Will contained in the constitution of external nature, which, philosophically speaking, was unknown to them. The facts unfolded by science were unknown to the divines who first denied the capability of mankind to attain, by the developement of their natural powers, a higher moral condition than any they have hitherto reached; and, hence, their decision against the capabilities of human nature has been pronounced *causâ non cognitâ* (the merits being unknown), and must be open for reconsideration. If Christianity was freed from many errors by the revival and spread of mere scholastic learning in the fifteenth, sixteenth, and seventeenth centuries, much more may we expect that the interpretations of Scripture will be farther purified, corrected, and elucidated, by the flood of light which the sciences of human and physical nature, now in the course of cultivation, will one day shed upon religion.

According to my view, the study of the human constitution, of external nature, and of their relations, will become an object of paramount importance, with reference to a just appreciation of the true meaning of Scripture. Civilised man sees infinitely more of true and practical wisdom in Scripture than the savage of the wilderness, even supposing that the latter could read and understand the words of the sacred volume; and, in like manner, man, when thoroughly instructed in his own constitution and in that of external nature, will discover still profounder truths and more admirable precepts in that record, than are found in it by ignorant, contentious, blind, conceited man, such as he has hitherto existed.

History is full of instruction concerning the insufficiency of mere theological knowledge to protect men from practical errors, when their understandings are unenlightened in regard to philosophy and the constitution of nature. The part which the religious teachers of Europe acted in regard to witchcraft, affords one striking proof of the truth of this remark.

It was not till towards the close of the 15th century that persecutions for witchcraft began to prevail in Europe. By a bull of Pope Innocent VIII. in 1484, death was, for the first time, denounced without mercy to all who should be convicted of witchcraft, or of dealings with Satan; and a form of process for the trial was regularly laid down by a wretch of the name of Sprenger, whom the pope had placed at the head of a commission of fire and sword. The succeeding popes, Alexander VI. and even Leo X., lent their aid in accelerating the course of this havoc-spreading engine. So far, however, were the commissions from being attended with beneficial consequences, that their only effect was to render the evil every day more formidable; till, at last, if we are to believe the testimony of contemporary historians, Europe was little better than a large suburb of Pandemonium. One-half of the population was either bewitching or bewitched. About the year 1515, 500 witches were executed in Geneva in three months. A thousand were executed in one year in the diocese of Como; and they went on burning at the rate of 100 per annum for some time after. In Lorraine, from 1580 to 1595, Remigius boasts of having burned 900. In France, the multitude of executions about 1520 is incredible. One historian calls it "an almost infinite number of sorcerers."

Germany was so fertile a soil for the supernatural, that, from the publication of Innocent's bull to the suppression of persecution for witchcraft, the number of victims could not be less than 100,000! In the town of Wurtzburg alone, in the course of two years —1627-29—there were twenty-nine acts of conflagration, and more than 157 persons burnt; including not only old women, but even children as young as nine years. In Lindheim, from 1660 to 1664, a twentieth part of the whole population was consumed. Other places furnished their full contingent; and so familiarised was the public with these atrocious scenes, that it relished and gloried in them: singing the events of them to popular airs, and representing them in hideous engravings, with devils dragging away "*their own*;" while the clergy preached solemn discourses, called "witch-sermons," upon occasion of every sacrifice—the effect of which was of course to inspire with fresh zeal to collect fuel for another.

England was not free from the same madness. Three thousand victims were executed during the reign of the Long Parliament alone; and it is a melancholy spectacle to find a man like Sir Matthew Hale condemning wretches to destruction, on evidence which a child would now be disposed to laugh at. A better order of things commenced with the Chief-Justiceship of Holt, in consequence of whose firm charge to the jury on one of these trials, a verdict of not guilty—almost the first then on record in a trial for witchcraft —was found. In about ten other trials by Holt, from 1694 to 1701, the result was the same. Yet, in 1716, a Mrs Hicks, and her daughter aged nine, were hanged at Huntingdon for selling their souls to the devil, and raising a storm by pulling off their stockings and making a lather of soap! With this crowning atrocity, the catalogue of murders in England closes, the penal statutes against witchcraft being repealed in 1736, and the *pretended* exercise of such arts being punished in future by imprisonment and pillory.

Barrington, in his observations on the statute of 20th Henry VI., does not hesitate to estimate the number of individuals put to death in England, on the charge of witchcraft, at 30,000!

Scotland, too, must bear her share of the bloody stain of these abominable doings. Till the Reformation, little or no regard was paid to this subject; but soon after that event, a raging thirst for destruction took possession of the nation. In 1563, an act of Parliament was passed, enacting the punishment of death against witches and consultors with witches. The consequences of this authoritative recognition of the creed of witchcraft became immediately obvious in the reign of James VI., which followed. Witchcraft became the all-engrossing topic of the day; and it was the ordinary accusation resorted to, whenever it was the object of one individual to ruin another. A number of the trials are reported in Mr Pitcairn's recent and valuable publication of the records of the Court of Justiciary. The first case is in 1572, of which no particulars are given, except the name of the unfortunate woman, and the doom—"*convict and brynt.*" Thirty-five trials are recorded subsequently to the end of James's reign, in all of which the horrid result is the same. The trials proceed, in the course of years, and the confessions are obtained by torture with thumb-screws and boots, and pricking with sharp instruments; while stranglings and burnings follow of course. The scene darkens towards the close of the reign of Charles I. with the increasing dominion of the puritans. In 1640, the General Assembly passed an act, that all ministers should take particular note of witches and charmers, and that the commissioners should recommend to the supreme judicature the unsparing application of the laws against them. In 1643, after setting forth the increase of the crime, they recommended the granting of a standing commission from the Privy Council or Justiciary, to "*any* understanding gentlemen or magistrates," to apprehend, try, and *execute justice* against delinquents. By the urgency of the General Assembly, who resumed the subject in 1644, 1645, and 1649, an act of Parliament was passed in the last-named year, confirming and extending the statute of Queen Mary, passed in 1563. As was to be expected, convictions, which had been fewer since James's time, increase, and the cases are more horrible. Thirty trials appear on the record between 1649 and 1660, in which there seems to have been only *one* acquittal; while at one western circuit, in 1659, seventeen persons were convicted and burnt for the imputed crime. Numerous, however, as are the cases in the records of Justiciary, these afford a most inadequate idea of the extent to which this pest prevailed over the country; for the Privy Council was in the habit of granting commissions to resident gentlemen and ministers, to examine, and afterwards to try and execute, witches all over Scotland; and so numerous were these commissions, that one author expresses his astonishment at the number found in the registers. Under these commissions, multitudes were burnt in every part of the kingdom.

It is matter of history, that, in cases of this kind, the clergy displayed the most intemperate zeal. It was before them that the poor wretches were first brought for examination—in most cases after a preparatory course of solitary confinement, cold, famine, want of sleep, or actual torture. On some occasions, the clergy themselves actually performed the part of the prickers, and inserted long pins into the flesh of the witches, in order to try their sensibility; and, in all cases, they laboured with the most persevering investigations to obtain from the accused a confession which might afterwards be used against them on their trial, and which, in more than one instance, formed, although retracted, the sole evidence on which the conviction took place.

After 1662, the violence of the mania in Scotland began to decline; and to the great lawyers of the time is due the credit of first stemming the foul torrent. "From the horridness of the crime," says Sir George Mackenzie in his Criminal Law, "I do conclude, that of all crimes it requires the clearest relevancy and most convincing probature; and I condemn, next to the wretches themselves, those cruel and too forward judges, who *burn persons by thousands* as guilty of this crime." The trials after this became fewer and fewer, and the last execution took place at

Dornoch in 1722. The statutes were finally repealed in 1735.*

So little light did the Bible afford regarding the atrocity of the proceedings against witches, that the Secession Church of Scotland, comprising many intelligent clergymen and a large number of the most serious and religious of the people, complained, in their annual Confession of personal and national sins (printed in an act of their Associate Presbytery at Edinburgh in 1743), of "the penal statutes against witches having been repealed by Parliament, *contrary to the express law of God.*" This defection is classed by Dr John Brown of Haddington, one of the great leaders of the Secession Church about the middle and end of last century, among "the practical backslidings from the once attained to and covenanted work of reformation, which have happened in the preceding and present age, as abuses of the singular favours of God."

During the whole of these proceedings, the clergy, both Catholic and Protestant, were in possession of revelation as fully and freely as they are at the present day; and in Scotland, in particular, the Reformation had been completed, and the *people* put in possession of the Bible, nearly a century before the cessation of these persecutions. Not only so, but the Bible itself was perversely used as the warrant of the atrocities, and religion employed to fan the flame of cruelty and superstition. If any facts can prove that the Creator intended man to use his intellectual faculties, and to study the revelation of His will contained in the works of nature, in addition to the Bible, as a guide to his conduct—and that the Bible was never intended to supersede the necessity of all other knowledge—those now detailed must have this effect. The great difference between Christians of the present day, who regard these executions as great crimes, and the pious ministers who inflicted, and the serious people who witnessed them, consists in the superior knowledge possessed by the moderns, of physical science, which has opened up to their understandings views of nature and of God, widely different from those entertained by their ancestors under the guidance of the Bible alone.

Nothing can afford a more convincing proof of the necessity of using all the lights in our power, by which to ascertain the true meaning of Scripture and the soundness of our interpretations of it, than the wide diversity of the opinions which even the most learned and pious divines have based upon the Bible. Another fact of some importance in relation to this matter is, that the manuscripts which handed down the sacred writings to us from ancient times vary in many important passages, sometimes through the ignorance and carelessness of transcribers, and sometimes in consequence of wilful corruption and interpolations by contending sects. The following passages, extracted from a celebrated treatise by one of the greatest ornaments of the Church of England, Bishop Taylor, are exceedingly instructive on this subject. "There are," says he, "so many thousands of copies, that were written by persons of several interests and persuasions—such different understandings and tempers—such distinct abilities and weaknesses—that it is no wonder there is so great a variety of readings both in the Old Testament and in the New. In the Old Testament, the Jews pretend that the Christians have corrupted many places, on purpose to make symphony between both the Testaments. On the other side, the Christians have had so much reason to suspect the Jews, that when Aquila had translated the Bible in their schools, and had been taught by them, they rejected the edition, many of them, and some of them called it heresy to follow it. And Justin Martyr justified it to Tryphon, that the Jews had defalked many sayings from the books of the old prophets.... I shall not need to urge, that there are some words so near in sound that the scribes might easily mistake.... The instances of this kind are too many, as appears in the variety of readings in several copies, proceeding from the negligence or ignorance of the transcribers, or the malicious endeavour of heretics, or the inserting marginal notes into the text, or the nearness of several words....But so it is that this variety of reading is not of slight consideration; for although it be demonstrably true, that all things necessary to faith and good manners are preserved from alteration and corruption, because they are of things necessary, and they could not be necessary unless they were delivered to us—God, in his goodness and his justice, having obliged himself to preserve that which he hath bound us to observe and keep; yet, in other things which God hath not obliged himself so punctually to preserve, in these things, since variety of reading is crept in, every reading takes away a degree of certainty from any proposition derivative from those places so read: and if some copies, especially if they be public and notable, omit a verse or a tittle, every argument from such a tittle or verse loses much of its strength and reputation."—Discourse of the Liberty of Prophesying, sect. iii. § 4.

As to consulting the Scriptures in the original tongues, this, says the Bishop, "is to small purpose: for indeed it will expound the Hebrew and the Greek, and rectify translations; but I know no man that says that the Scriptures in Hebrew and Greek are easy and certain to be understood, and that they are hard in Latin and English: the difficulty is in the thing, however it be expressed—the least is in the language. If the original languages were our mother-tongue, Scripture is not much the easier to us: and a natural Greek or a Jew can with no more reason or authority obtrude his interpretations upon other men's consciences, than a man of another nation. Add to this, that the inspection of the original is no more certain way of interpretation of Scripture now, than it was to the fathers and primitive age of the Church; and yet he that observes what infinite variety of translations were in the first ages of the Church (as St Jerome observes), and never a one like another, will think that we shall differ as much in our interpretations as they did, and that the medium is as uncertain to us as it was to them; and so it is: witness the great number of late translations, and the infinite number of commentaries, which are too pregnant an argument that we neither agree in the understanding of the words nor of the sense." "Men," he adds most justly, "do not learn their doctrines from Scripture, but come to the understanding of Scripture with preconceptions and ideas of doctrines of their own; and then no wonder that scriptures look like pictures, wherein every man in the room believes they look on him only, and *that* wheresoever he stands or how often soever he changes his station."—Sect. iv. § 5, 6.

The folly of setting up any isolated passage of Scripture against truths brought to light by experiment and observation, is rendered still more obvious by what Bishop Taylor says respecting the extreme difficulty of discovering the real meaning of many parts of the Bible, even where there are sufficient grounds for believing the text to be genuine. "Since there are in Scripture," he observes, "many other mysteries, and matters of question, upon which there is a veil; since there are so many copies with infinite varieties of reading; since a various interpunction, a parenthesis, a letter, an accent, may much alter the sense; since some places have divers literal senses, many have spiritual, mystical, and allegorical meanings; since there are so many tropes, metonymies, ironies, hyperboles, proprieties and improprieties of language, whose understanding depends upon such circumstances that it is almost impossible to know the proper interpretation, now that the knowledge of such circumstances and particular stories is irrevocably lost: since there are some mysteries which, at the best advantage of expression, are not easy to be apprehended;

* These particulars respecting persecutions for witchcraft are given on the authority of a learned and elaborate article, understood to be from the pen of Professor Moir of Edinburgh, in the 11th Number of the Foreign Quarterly Review.

and whose explication, by reason of our imperfections, must needs be dark, sometimes weak, sometimes unintelligible: and, lastly, since those ordinary means of expounding Scripture, as searching the originals, conference of places, parity of reason, and analogy of faith, are all dubious, uncertain, and very fallible; he that is wisest, and, by consequence, the likeliest to expound truest in all probability of reason, will be very far from confidence; because every one of these, and many more, are like so many degrees of improbability and uncertainty, all depressing our certainty of finding out truth in such mysteries, and amidst so many difficulties. And therefore a wise man, that considers this, would not willingly be prescribed to by others; and therefore, if he also be a just man, he will not impose upon others; for it is best every man should be left in that liberty from which no man can justly take him, unless he could secure him from error."—Sect. iv. § 8.

On this subject the reader is referred also to an able "Essay on the Plenary and Verbal Inspiration of the Holy Scriptures, by Donald Fraser, D.D., Minister of the Gospel, Kennoway, Fifeshire."* The following passage illustrates the propriety of acting upon Bishop Taylor's suggestions:—"Be it observed, that when the New Testament writers, in quoting from the Old, affirm that the Scripture was *fulfilled*, they do not always mean that an ancient prediction was literally accomplished. In some instances they apply this term to the verification of a type; as when John, after relating the circumstance of the soldiers not breaking the legs of Jesus, adds a quotation respecting the paschal lamb: 'These things were done that the Scripture should be fulfilled, A bone of him shall not be broken.' (Chap. xix. 36, compared with Exod. xii. 36.) In other places they only accommodate the citation to the subject of their narrative. Thus, Matthew, after relating Herod's cruel murder of the babes in Bethlehem and its vicinity, immediately adds:—'Then was fulfilled that which was spoken by Jeremy the prophet, saying, In Rama was there a voice heard, lamentation, and weeping, and great mourning, Rachel weeping for her children, and would not be comforted, because they are not.' (Matth. ii. 17, 18, compared with Jer. xxxi. 15.) That is to say, the great lamentation and inconsolable grief amongst the mothers of Bethlehem, occasioned by Herod's embruing his hands in the blood of their unoffending children, may be happily illustrated by the prophet's description of the sorrows attending the Babylonish captivity; where, by a beautiful figure, he represents Rachel as bitterly deploring the loss of her offspring.

"An important critical observation of the late Dr Campbell's must not be here omitted. He justly observes, that, in many passages of the New Testament, it would have been proper to render the original term πληροω by the English word *verify*, in preference to *fulfil*; for this last word 'has a much more limited signification, and gives a handle to cavillers where the original gives none. It makes the sacred penmen appear to call those things predictions which plainly were not, and which they never meant to denominate predictions.' *Verify* is, accordingly, the term which that distinguished interpreter usually prefers in his own Translation of the Four Gospels."—Chap. iii. § 7.

In the remarks offered in the present chapter, I do not depreciate the importance of the Bible; I only very humbly endeavour to vindicate the study of the Creator's will in his works as well as in his word—to show that the human mind needs illumination from both to direct our conduct towards virtue—and to prove that, without knowledge of the former, we may grievously misunderstand the meaning of the latter. In the words of Archbishop Whately, I consider that "we are bound to use our own natural faculties in the search after all that is within the reach of these faculties; and that most especially ought we to try, by their own proper evidence, questions which form no part of revelation, properly so called, but which are incidentally alluded to in the Sacred Writings." "If it be true that man's duty coincides with his real interest, both in this world and in the next, the better he is qualified, by intellectual culture and diffusion of knowledge, to understand his duty and his interests, the greater prospect there would seem to be (other points being equal) of his moral improvement."

An objection has been stated against the doctrine of the divine government of the world by established laws, that it is inconsistent with belief in the efficacy of prayer. This objection has been often urged and answered; indeed it has been deliberately settled by the Church of Scotland itself, in harmony with the views advocated in this treatise. In a Sermon on Prayer, by the Rev. William Leechman, D.D., Principal, and Professor of Divinity, in the College of Glasgow, the following passage occurs:—"It is objected," says he, "That, since God is infinite in goodness, he is always disposed to bestow on his creatures whatever is proper for them; and since he is infinite in wisdom, he will always choose the fittest time, and best manner of bestowing it. To what purpose, then, do we entreat him to do what he certainly will do without any solicitation or importunity?" To this it may be answered, That, as it is not the design of prayer to give information to our Creator of things he was not acquainted with before; so neither is it the design of it to move his affections, as good speakers move the hearts of their hearers, by the pathetic arts of oratory; nor to raise his pity, as beggars, by their importunities and tears, work upon the compassion of the bystanders. God is not subject to those sudden passions and emotions of mind which we feel; nor to any change of his measures and conduct by their influence: he is not wrought upon and changed by our prayers; for *with him there is no variableness nor shadow of turning.* Prayer only works its effect upon *us*, as it contributes to change the temper of *our* minds, to beget or improve right dispositions in them, to lay them open to the impressions of spiritual objects, and thus qualify us for receiving the favour and approbation of our Maker, and all those assistances which he has promised to those who call upon him in sincerity and in truth. The efficacy of prayer does not lie in the mere asking; but in its being the means of producing that frame of mind which qualifies us to receive."*

Dr Leechman was prosecuted for the alleged heresy of these doctrines before the Presbytery of Glasgow, in February 1744. The opinion of the Presbytery was unfavourable; but the question was appealed to the Synod, which "found no reason to charge the said Professor with any unsoundness in the faith, expressed in the passages of the sermon complained of." The case was afterwards carried by appeal to the General Assembly. "That court," says Dr Wodrow, in his Life of Dr Leechman, prefixed to the Sermons, "when the cause came before them, wisely referred it to a select committee, and adopted their judgment without a vote. They found, 'That the Synod of Glasgow and Ayr had sufficient reason to take into their own hands the cognisance of the inquiry touching the sermon.' They confirmed the judgment passed by that Synod, and 'prohibited the Presbytery of Glasgow to commence or carry on any further or other proceedings against the Professor, on account of that sermon.'"

Since this decision, the views delivered by Professor Leechman have been unhesitatingly taught by Scotch divines. Dr Blair, in his sermon "On the Unchangeableness of the Divine Nature," observes: "It will be proper to begin this head of discourse by removing an objection which the doctrine I have illustrated may appear to form against religious services, and, in particular, against the duty of prayer. To what purpose, it may be urged, is homage addressed to a Being whose purpose is unalterably fixed; to whom *our righteousness extendeth not;* whom by no arguments we can persuade, and by no supplications

* Affleck, Edinburgh, and Rutherglen and Co. Glasgow, 1834.

* Dr Leechman's Sermons, Lond, 1789, Serm. iii. p. 192.

we can mollify? The objection would have weight, if our religious addresses were designed to work any alteration on God; either by giving him information of what he did not know, or by exciting affections which he did not possess; or by inducing him to change measures which he had previously formed. But they are only crude and imperfect notions of religion which can suggest such ideas. The change which our devotions are intended to make, is upon ourselves, not upon the Almighty. Their chief efficacy is derived from the good dispositions which they raise and cherish in the human soul. By pouring out pious sentiments and desires before God, by adoring his perfection and confessing our own unworthiness, by expressing our dependence on his aid, our gratitude for his past favours, our submission to his present will, our trust in his future mercy, we cultivate such affections as suit our place and station in the universe, and are thereby prepared for becoming objects of the divine grace."—Vol. ii.

The same views were taught by the philosophers of the last century. "The Being that made the world," says Lord Kames, "governs it by laws that are inflexible, because they are the best; and to imagine that he can be moved by prayers, oblations, or sacrifices, to vary his plan of government, is an impious thought, degrading the Deity to a level with ourselves." His lordship's opinion relative to the advantage of public worship, shows that he did not conceive the foregoing view of prayer to be in the least inconsistent with its reasonableness and utility. "The principle of devotion," he says, "like most of our other principles, partakes of the imperfection of our nature; yet, however faint originally, it is capable of being greatly invigorated by cultivation and exercise. Private exercise is not sufficient. Nature, and consequently the God of nature, require public exercise or public worship; for devotion is communicative, like joy or grief; and, by mutual communication in a numerous assembly, is greatly invigorated. A regular habit of expressing publicly our gratitude and resignation never fails to purify the mind, tending to wean it from every unlawful pursuit. This is the true motive of public worship; not what is commonly inculcated—that it is required from us as a testimony to our Maker of our obedience to his laws: God, who knows the heart, needs no such testimony."*

In closing this chapter, I may observe, that many excellent and sincere Christians, to whom I am most anxious to avoid giving offence, labour under great disadvantages in judging of the truth and importance of several of the views stated in this Work, in consequence of their entire ignorance of the functions of the brain, and the laws of its activity. Many of them have been educated in the belief, that human nature is entirely corrupt and wicked; and when, in consequence of private or public devotion, they become conscious of vivid love to God and benevolence to men, and of aspirations after general purity and excellence, springing up in their minds, they ascribe these emotions exclusively to the direct influence of the Divine Spirit—without being in the least aware of the extent to which a large developement of the moral organs, combined with an active temperament, contributes to this effect. The phrenologist, in contemplating these organs operating in excess, or in a state of disease, obtains light on this subject which other persons cannot reach. Mere excess in size and activity leads to fanaticism and a persuasion of inspiration, such as occurred in Bunyan, Swedenborg, and the late Edward Irving. I examined the head of the Reverend Edward Irving before he had become known to the public, and noted the organs of Imitation, Wonder, Ideality, Veneration, Self-Esteem, Conscientiousness, and Firmness, as large: Wonder, Self-Esteem, and Firmness predominated; and these appear to have attained almost to diseased activity in the latter years of his life. Diseased activity produces belief in actual communication with heaven. Christianity cannot fail to be benefited by the light which Phrenology is shedding on the organs in health as well as in disease.*

* Sketches, B. iii. Sk. 3. Ch. iii. § I.

CONCLUSION.

What is the practical use of Phrenology, even supposing it to be true?—Its utility pointed out in reference to politics, legislation, education, morals and religion, and the professions, pursuits, hours of exertion, and amusements of individuals—The precepts of Christianity impracticable in the present state of society—Improvement anticipated from the diffusion of the true philosophy of mind—The change, however, will be gradual—What ought education to embrace?—and what religious instruction?

THE question has frequently been asked, What is the practical use of Phrenology, even supposing it to be true? A few observations will enable us to answer this inquiry, and, at the same time, to present a brief summary of the doctrine of the preceding work.

Prior to the age of Copernicus, the earth and sun presented to the eye phenomena exactly similar to those which they now exhibit; but their motions appeared in a very different light to the understanding.

Before the age of Newton, the revolutions of the planets were known as matter of fact; but mankind was ignorant of the principle of their motions.

Previously to the dawn of modern chemistry, many of the qualities of physical substances were ascertained by observation; but their ultimate principles and relations were not understood.

Knowledge, as I observed in the Introduction, may be made beneficial in two ways—either by rendering the substance discovered directly subservient to human enjoyment; or, where this is impossible, by modifying human conduct in harmony with its qualities. While knowledge of any department of nature remains imperfect and empirical, the unknown qualities of the objects comprehended in it may render our efforts either to apply or to act in accordance with those which are known, altogether abortive. Hence it is only after ultimate principles have been discovered, their relations ascertained, and this knowledge systematised, that science can attain its full character of utility. The merits of Copernicus and Newton consist in having rendered this service to astronomy.

Before the appearance of Drs Gall and Spurzheim, mankind were practically acquainted with the feelings and intellectual operations of their own minds, and anatomists knew the appearances of the brain. But the science of mind was very much in the same state as that of the heavenly bodies prior to the times of Copernicus and Newton.

First, No unanimity prevailed among philosophers concerning the elementary feelings and intellectual powers of man. Individuals deficient in Conscientiousness, for instance, denied that the sentiment of justice was a primitive mental quality: others, deficient in Veneration, asserted that man was not naturally prone to worship, and ascribed religion to the invention of priests.

Secondly, The extent to which the primitive faculties differ in strength, was matter of dispute, or of vague conjecture; and, concerning many attainments, there was no agreement among philosophers whether they were the gifts of nature or the results of mere cultivation.

Thirdly, Different modes or states of the same feeling were often mistaken for different feelings; and modes of action of all the intellectual faculties were mistaken for distinct faculties.

Fourthly, The brain, confessedly the most important organ of the body, and that with which the nerves of the senses, of motion, and of feeling, directly commu-

* See on this subject Dr Andrew Combe's Observations on Mental Derangement, pp. 184–189; System of Phrenology, section on Wonder; Remarks on Demonology and Witchcraft, in the Phren. Jour. vi. 504; and, in the 44th and 45th Numbers of the same Journal, "Observations on Religious Fanaticism, illustrated by a Comparison of the Belief and Conduct of Noted Religious Enthusiasts with those of Patients in the Montrose Lunatic Asylum. By W. A. F. Browne, Esq. Medical Superintendant of that Institution."

nicate, had no ascertained functions. Mankind were ignorant of its uses, and of its influence on the mental faculties. They indeed still dispute that its different parts are the organs of different mental powers, and that the vigour of each faculty bears a proportion, *cæteris paribus*, to the size of its organ.

If, in physics, imperfect and empirical knowledge renders the unknown qualities of bodies liable to frustrate the efforts of man to apply or to accommodate his conduct to their known qualities—and if only a complete and systematic exhibition of ultimate principles, and their relations, can confer on science its full character of utility—the same doctrine applies with equal or greater force to the philosophy of man.

The science of POLITICS embraces forms of government, and the relations between different states. All government is designed to combine the efforts of individuals, and to regulate their conduct when united. To arrive at the best means of accomplishing this end, systematic knowledge of the nature of man seems highly important. A despotism, for example, may restrain some abuses of the propensities, but it assuredly impedes the exercise of reflection, and others of the highest and noblest powers. A form of government can be suited to the nature of man only when it is calculated to permit the legitimate use, and to restrain the abuses, of all his mental feelings and capacities: and how can such a government be devised, while these faculties, with their spheres of action and external relations, are imperfectly ascertained? Again, all relations between different states must also be in accordance with the nature of man, to prove permanently beneficial; and the question recurs, How are these to be framed while that nature is a matter of conjecture? Napoleon disbelieved in a sentiment of justice as an innate quality of the mind, and, in his relations with other states, relied on fear and interest as the grand motives of conduct: but that sentiment existed, and, combined with other faculties which he outraged—prompted Europe to hurl him from his throne. If Napoleon had comprehended the principles of human nature, and their relations, as forcibly and clearly as the principles of mathematics, in which he excelled, his understanding would have greatly modified his conduct, and Europe would have escaped prodigious calamities.

LEGISLATION, civil and criminal, is intended to regulate and direct the human faculties in their efforts at gratification; and laws, to be useful, must accord with the constitution of these faculties. But how can salutary laws be enacted, while the subject to be governed, or human nature, is not accurately understood? The inconsistency and intricacy of the laws, even in enlightened nations, have afforded themes for the satirist in every age;—yet how could the case be otherwise? Legislators provided rules for directing the qualities of human nature, which they conceived themselves to know; but either error in their conceptions, or the effects of other qualities unknown or unattended to, defeated their intentions. The law, for example, punishing heresy with burning, was addressed by our ancestors to Cautiousness and the Love of Life; but Intellect, Veneration, Conscientiousness, and Firmness, were omitted in their estimate of human principles of action;—and these set the law at defiance. There are many laws still in the Statute-Book, equally at variance with the nature of man.

EDUCATION is intended to enlighten the intellect, to train it and the moral sentiments to vigour, and to repress the too great activity of the selfish feelings. But how can this be successfully accomplished, when the faculties and sentiments themselves, the laws to which they are subjected, and their relations to external objects, are unascertained? Accordingly, the theories and practices observed in education are innumerable and contradictory; which could not happen if men knew the constitution of the object which they were training.

In an "Essai sur la Statistique morale de la France," by Mons. A. M. Guerry, published at Paris in 1833, it is stated that crimes against property and person are most numerous in proportion to the population in those departments of France—the north and east—in which the people are the best educated, the richest, and the most industrious. This must be owing in part to the increased power which education gives of doing either good or evil, and partly to the defects in the education afforded.* The philosophy of man being unknown, children are not taught any rational views of the plan of life; they are not instructed in the constitution of society, and obtain no sufficient information concerning the sources of real enjoyment. They are not taught any system of morals based on the nature of man and his social relations, but are left each to grope his way to happiness according to the dictates of his individual mind. They see the rich pursuing pleasure and fashion; and if they follow such examples, they must resort to crime for the means of gratification: yet there is no solid instruction given to them, sufficient to satisfy their understandings that the rich themselves are straying from the paths that lead to solid and lasting happiness, and that it is to be found only in other and higher occupations.

MORALS and RELIGION, also, cannot assume a systematic and thoroughly demonstrable character, until the elementary faculties of the mind, and their relations, shall be ascertained.

It is presumable that the Deity, in creating the moral powers and the external world, really adapted the one to the other; so that individuals and nations, in pursuing morality, must, in every instance, be promoting their best interests, and, in departing from it, must be sacrificing them to passion or to illusory notions of advantage. But, until the nature of man, and the relationship between it and the external world, shall be scientifically ascertained, and systematically expounded, it will be impossible to support morality by the powerful demonstration that interest coincides with it. The tendency in most men to view expediency as not always coincident with justice, affords a striking proof of the limited knowledge of the constitution of man and the external world still existing in society.

The diversities of doctrine in religion, too, obviously owe their origin to ignorance of the primitive faculties and their relations. The relative strength of the

* It is proper to remark, however, that M. Guerry's statement, supposing it to be grounded on sufficient data, does not show that education tends to increase rather than diminish crime; for, as a writer in the Phrenological Journal observes, "until it be proved that education has the same kind of subjects to operate on in every part of France, its effects cannot be judged of from such data as those furnished by M. Guerry." After stating reasons for concluding that the generality of heads are better in some parts of France than in others, the writer adds: "Now, this important fact ought not to be overlooked, as it has hitherto been, in judging of the influence of education; for it can hardly be doubted, that educated but inferior minds will display less morality than minds which are uneducated but naturally much superior. What should we say of a man who should call in question the efficacy of medical treatment, because a patient tainted from birth with consumption, and who had been long under the care of a physician, was not so healthy as a person with naturally sound lungs, who had never taken medical advice in his life? But for the treatment, the consumptive man would have been much worse than he actually was, and probably would have died in early youth. To judge correctly, therefore, of the question at issue, we must compare the present amount of crime in particular departments of France, with its amount *in the same departments* when there was either very little instruction or none at all.] In this manner we shall also avoid being misled by the effects of other influences; such as the density or thinness of the population—the employment of the people in agriculture or manufactures—and their residence on the coast, in the interior, or in mountainous or fertile districts. Were such a trial made, I think it would almost without exception be found, in cases where no great change of circumstances had occurred, that in exact proportion to the increase of education there had been an obvious diminution of crime. I am well aware that, by the system of instruction generally pursued, the moral feelings, which restrain from crime, are wholly neglected; but cultivation even of the intellect appears favourable to morality; *first*, by giving periods of repose to the lower propensities of whose excessive activity crime is the result; *secondly*, by promoting the formation of habits of regularity, subordination, and obedience; and, *thirdly*, by strengthening and informing the intellect, and thereby enabling it to see more clearly the dangerous consequences of crime. No doubt there are criminals on whom an excellent intellectual education has been bestowed; but instead of thence inferring that education increases the liability of mankind to crime, I think it may with great reason be asked, whether, had the same individuals wanted education altogether, their crimes would not have been ten times more atrocious."—*Phren. Jour.* vol. ix. p. 268.

faculties differs in different individuals, and each person is most alive to objects and views connected with the powers predominant in himself. Hence, in reading the Scriptures, one is convinced that they establish Calvinism; another, possessing a different combination of faculties, discovers in them Lutheranism; and a third is satisfied that Unitarianism is the only true interpretation. These individuals have, in general, no distinct conception that the views which strike them most forcibly, appear in a different light to minds differently constituted. A correct interpretation of revelation must harmonise with the dictates of the moral sentiments and well-informed intellect, holding the animal propensities in subordination. It may legitimately go beyond what they, unaided, could reach; but it cannot contradict them: because this would be setting the revelation of the Bible in opposition to the dictates of the regulating faculties constituted by the Creator—a proceeding which cannot be admitted, since the Deity is too powerful and wise to be inconsistent. But mankind will never be induced to bow to such interpretations, while each takes his individual mind as a standard of human nature in general, and conceives that his own impressions are identical with absolute truth. The establishment of the philosophy of man, therefore, on a scientific basis, and in a systematic form, must aid the cause both of morality and of religion.

The PROFESSIONS, PURSUITS, HOURS OF EXERTION, and AMUSEMENTS of individuals, ought also to bear reference to their physical and mental constitution; but hitherto no guiding principle has been possessed to regulate practice in these important particulars —another evidence that the science of man has been unknown.

In consequence of the want of a philosophy of man, there is little harmony between the different departments of human pursuit. God is one; and as He is intelligent, benevolent, and powerful, we may reasonably conclude that creation is one harmonious system, in which the physical is adapted to the moral, the moral to the physical, and every department of these grand divisions to the whole. But at present, many principles clearly revealed by philosophy are impracticable, because the institutions of society have not been founded with a due regard to their existence. An educated lady, for example, or a member of one of the learned professions, may perceive with the clearest conviction that God, by the manner in which he has constituted the body, and connected the mind with the brain, has positively enjoined muscular exertion, as indispensable to the possession of sound health, the enjoyment of life, and the rearing of a healthy offspring; and, nevertheless, they may find themselves so hedged round by routine of employment, the fashions of society, the influence of opinion, and the positive absence of all arrangements suited to the purpose, that they are rendered nearly as incapable of yielding this obedience to God's law, as if they were imprisoned in a dungeon.

By religion we are commanded to set our affections on things above, and not to permit our minds to be engrossed with the cares of the world; we are desired to seek godliness, and eschew selfishness, contention, and the vanities of life. These precepts must have been intended to be practically followed, otherwise it was a mockery of mankind to give them forth: But if they were intended to be practised, God must have arranged the inherent constitution of man, and that of the world, in such a manner as to admit of mankind obeying them—and not only so, but to render men happy in proportion as they should practise, and miserable as they should neglect them. Nevertheless, when we survey human society in the forms in which it has hitherto existed, and in which it now exists, these precepts appear to have been, and to be now, absolutely impracticable to ninety-nine out of every hundred of civilised men. Suppose the most eloquent and irresistibly convincing discourse on the Christian duties to be delivered on Sunday to a congregation of Manchester manufacturers and their operatives, or to London merchants, Essex farmers, or Westminster lawyers, how would they find their respective spheres of life adapted for acting practically on their convictions? They are all commanded to love God with their whole heart and soul, and to resist the world and the flesh, or, in philosophical language, to support their moral affections and intellectual powers in habitual activity—to direct them to noble, elevating, and beneficial objects—and to resist the subjugation of these higher attributes of their minds to animal pleasure, sordid selfishness, and worldly ambition. The moral and intellectual powers assent to the reasonableness of these precepts, and rejoice in the prospect of their practical application; but, on Monday morning, the manufacturers, owing to the institutions of society, and the department of life into which they have been cast before they had either reason or moral perception to direct their choice, must commence a course of ceaseless toil—the workmen that they may support life, and the masters that they may avoid ruin, or accumulate wealth. Saturday evening finds them worn out with mental and bodily exertion, continued through all the intermediate days, and directed to pursuits connected with this world alone. Sunday dawns upon them in a state of mind widely at variance with the Christian condition. In like manner, the merchant must devote himself to his bargains, the farmer to his plough, and the lawyer to his briefs, with corresponding assiduity; so that their moral powers have neither objects presented to them, nor vigour left for enjoyments befitting their nature and desires. It is in vain to say to individuals that they err in acting thus: individuals are carried along in the great stream of social institutions and pursuits. The operative labourer is compelled to follow his routine of toil under pain of absolute starvation. The master-manufacturer, the merchant, the farmer, and the lawyer, are pursued by competitors so active, that if they relax in selfish ardour, they will be speedily plunged into ruin. If God has so constituted the human mind and body, and so arranged external nature, that all this is unavoidably necessary for man, then the Christian precepts are scarcely more suited to human nature and circumstances in this world, than the command to fly would be to the nature of the horse. If, on the other hand, man's nature and circumstances do in themselves admit of the Christian precepts being realised, it is obvious that a great revolution must take place in our notions, principles of action, practices, and social institutions, before this can be accomplished. That many Christian teachers believe this improvement possible, and desire its execution, I cannot doubt; but through want of knowledge of the constituent elements of human nature, and their relations—through want, in short, of a philosophy of mind and of physical nature—they have never been able to perceive what God has rendered man capable of attaining—how it may be attained—or on what principles the moral and physical government of the world in regard to man is conducted. Consequently, they have not acted generally on the idea of religion being a branch of an all-comprehending philosophy; they have relied chiefly on inculcating the precepts of their Master, threatening future punishments for disobedience, and promising future rewards for observance—without proving to society philosophically, not only that its institutions, practices, and principles, must be erected on loftier ground than they are at present before it can become truly Christian—but that these improvements are actually within the compass of human nature, aided by revelation. Individuals in whom there is a strong aspiration after the realisation of the Christian state of society, but whose intellects cannot perceive any natural means by which it can be produced, take refuge in the regions of prophecy, and expect a miraculous reign of saints in the Millennium. How much more profitable would it be to study the philosophy of man's nature, which is obviously the work of God, and endeavour to introduce morality and happiness by the

means appointed by Him in creation! Supernatural agency has long since ceased to interfere with human affairs; and whenever it shall operate again, we may presume that it will be neither assisted nor retarded by human opinions and speculations.

We need only attend to the scenes daily presenting themselves in society, to obtain an irresistible conviction that many evil consequences result from the want of a true theory of human nature, and its relations. Every preceptor in schools—every professor in colleges—every author, editor, and pamphleteer—every member of Parliament, councillor, and judge—has a set of notions of his own, which, in his mind, holds the place of a system of the philosophy of man; and although he may not have methodised his ideas, or even acknowledged them to himself as a theory, yet they constitute a standard to him by which he practically judges of all questions in morals, politics, and religion: he advocates whatever views coincide with them, and condemns all that differ from them, with as unhesitating a dogmatism as the most pertinacious theorist on earth. Each also despises the notions of his fellows, in so far as they differ from his own. In short, the human faculties too generally operate simply as instincts, exhibiting all the confliction and uncertainty of mere feeling, unenlightened by perception of their own nature and objects. Hence public measures in general, whether relating to education, religion, trade, manufactures, the poor, criminal law, or any other subject linked with the dearest interests of society, instead of being treated as branches of one general system of economy, and adjusted on scientific principles each in harmony with all the rest, are supported or opposed on narrow and empirical grounds, and often call forth displays of ignorance, prejudice, selfishness, intolerance and bigotry, that greatly obstruct the progress of improvement. Indeed, any important approach to unanimity, even among sensible and virtuous men, will be impossible, so long as no standard of mental philosophy is admitted to guide individual feelings and perceptions. But the state of things now described could not exist, if education embraced a true system of human nature and its relations.

If, then, the doctrine of the natural laws here expounded be true, it will, when matured, supply the deficiencies now pointed out.

But here another question naturally presents itself—How are the views explained in this work, supposing them to contain some portion of truth, to be rendered practical? Sound views of human nature and of the divine government come home to the feelings and understandings of men; they perceive them to possess a substantive existence and reality, which rivet attention and command respect. If the doctrine unfolded in the present treatise be in any degree true, it is destined to operate proportionally on the character of clerical instruction. Individuals whose minds have embraced the views which it contains, inform me that many sermons appear to them inconsistent in their different propositions, at variance with sound views of human nature, and so vague as to have little relation to practical life and conduct. They partake of the abstractedness of the scholastic philosophy. The first divine of comprehensive intellect and powerful moral feelings who shall take courage and introduce the natural laws into his discourses, and teach the people the works and institutions of the Creator, will reap a great reward in usefulness and pleasure. If this course shall, as heretofore, be neglected, the people, who are daily adding to their knowledge of philosophy and practical science, will in a few years look down with disrespect on their clerical guides, and probably force them, by "pressure from without," to remodel the entire system of pulpit-instruction.

The institutions and manners of society indicate the state of mind of the influential classes at the time when they prevail. The trial and burning of old women as witches, point out clearly the predominance of Destructiveness and Wonder over Intellect and Benevolence, in those who were guilty of such cruel absurdities. The practices of wager of battle, and ordeal by fire and water, indicate great activity of Combativeness, Destructiveness, and Veneration, in those who permitted them, combined with lamentable ignorance of the natural constitution of the world. In like manner, the enormous sums willingly expended in war, and the small sums grudgingly paid for public improvements—the intense energy displayed in the pursuit of wealth—and the general apathy evinced in the search after knowledge and virtue—unequivocally proclaim activity of Combativeness, Destructiveness, Acquisitiveness, Self-Esteem, and Love of Approbation, with comparatively moderate vivacity of Benevolence, in the present generation. Before, therefore, the practices of mankind can be altered, the state of their minds must be changed. No error can be more gross than that of establishing institutions greatly in advance of the mental condition of the people. The rational method is, first to instruct the intellect, then to interest the sentiments, and, last of all, to form arrangements in harmony with these and resting on them as their basis.

The views developed in the preceding chapters, if founded in nature, may be expected to lead, ultimately, to considerable changes in many of the customs and pursuits of society; but to accomplish this effect, the principles themselves must first be ascertained to be true, and then they must be sedulously taught. It appears to me that a long series of years will be necessary to bring even civilised nations into a condition to obey systematically the natural laws.

The present work may be regarded as, in one sense, an introduction to an essay on education. If the views unfolded in it be in general sound, it will follow that education has scarcely yet commenced. If the Creator has bestowed on the body, on the mind, and on external nature, determinate constitutions, and has arranged them so as to act on each other, and to produce happiness or misery to man, according to certain definite principles—and if this action goes on invariably, inflexibly, and irresistibly, whether men attend to it or not—it is obvious that the very basis of useful knowledge must consist in an acquaintance with these natural arrangements, and that education will be valuable in the exact degree in which it communicates such information, and trains the faculties to act upon it. Reading, writing, and accounts, which make up the instruction enjoyed by the lower orders, are merely *means of acquiring knowledge*, but do not *constitute* it. Greek, Latin, and mathematics, which are added in the education of the middle and upper classes, are still only *means* of obtaining information: so that, with the exception of the few who pursue physical science, society dedicates very little attention to the study of the natural laws. In following out the views now discussed, therefore, each individual, according as he becomes acquainted with the natural laws, ought to obey them, and to communicate his experience of their operations to others; avoiding, at the same time, all attempts at subverting, by violence, established institutions, or outraging public sentiment by intemperate discussions. The doctrine before unfolded, if true, authorises us to predicate that the most successful method of ameliorating the condition of mankind will be that which appeals most directly to their moral sentiments and intellect; and I may add from experience and observation, that, in proportion as any individual becomes acquainted with the real constitution of the human mind, will his conviction of the efficacy of this method increase.

The next step ought to be to teach those laws to the young. Their minds, not being occupied by prejudice, will recognise them as congenial to their own constitution; the first generation that shall embrace them from infancy will proceed to modify the institutions of society into accordance with their dictates; and in the course of ages, they may at length be acknowledged as practically useful. A perception of the importance of the natural laws will lead to their observance, and this will be attended with an improved developement

of brain, thereby increasing the desire and capacity for obedience. All true theories have ultimately been adopted and influenced practice; and I see no reason to fear that the present, if true, will prove an exception. The failure of all previous systems is the natural consequence of their being unfounded; if this resemble them, it will deserve, and assuredly will meet, a similar fate.

Finally, if it be true that the natural laws must be obeyed as a preliminary condition to happiness in this world, and if virtue and happiness be inseparably allied, the religious instructors of mankind may probably discover in the general and prevalent ignorance of these laws, one reason of the limited success which has hitherto attended their efforts to improve the condition of mankind; and they may perhaps perceive it to be not inconsistent with their sacred office, to instruct men in the natural institutions of the Creator, in addition to his revealed will, and to recommend obedience to both. They exercise so vast an influence over the best members of society, that their countenance may hasten, or their opposition retard, by a century, the general adoption of the natural laws as sound guides of human conduct.

If the excessive toil of the manufacturer be inconsistent with that elevation of the moral and intellectual faculties of man which is commanded by religion, and if the moral and physical welfare of mankind be not at variance with each other (which they cannot be), the institutions of society, out of which the necessity for that labour arises, must, philosophically speaking, be pernicious to the interests of the state as a political body, and to the temporal welfare of the individuals who compose it; and whenever we shall be in possession of a correct knowledge of the elements of human nature, and the principles on which God has constituted the world, the *philosophical evidence* that these practices are detrimental to *our temporal welfare*, will be as clear as that of their inconsistency with our religious duties. Until, however, divines shall become acquainted with this relation between philosophy and religion, they will not possess adequate means of rendering their precepts practical in this world; they will not carry the intellectual perceptions of their hearers fully along with them; they will be incapable of controlling the force of the animal propensities; and they will never lead society to the fulfilment of its highest destinies. At present, the animal propensities are fortified in the strong entrenchments of social institutions: Acquisitiveness, for example, is protected and fostered by our arrangements for accumulating wealth; a worldly spirit, by our constant struggle to obtain the means of subsistence; pride and vanity, by our artificial distinctions of rank and fashion; and Combativeness and Destructiveness by our warlike professions. The divine assails the vices and inordinate passions of mankind by the denunciations of the Gospel; but as long as society shall be animated by different principles, and maintain in vigour institutions whose spirit is diametrically opposite to its doctrines, so long will it be difficult for him to effect the realisation of his precepts in practice. Yet it appears to me, that, by teaching mankind the philosophy of their own nature and of the world in which they live—by proving to them the coincidence between the dictates of this philosophy and Christian morality, and the inconsistency of their own institutions with both—they may be induced to modify the latter, and to entrench the moral powers; and then the triumph of virtue and religion will be more complete. Those who advocate the exclusive importance of spiritual religion for the improvement of mankind, appear to me to err in overlooking too much the necessity for complying with the natural conditions on which all improvement depends; and I anticipate, that when schools and colleges shall expound the various branches of philosophy as portions of the institutions of the Creator—when the pulpit shall deal with the same principles, show their practical application to man's duties and enjoyments, and add the sanctions of religion to enforce the observance of the natural laws—and when the busy scenes of life shall be so arranged as to become a field for the practice at once of our philosophy and of our religion—then will man assume his station as a rational being, and Christianity achieve her triumph.

APPENDIX.

No. I.—Natural Laws.

Text, p. 8.

It is mentioned in the text that many philosophers have treated of the Laws of Nature. The following are examples :—

Montesquieu introduces his Spirit of Laws with the following observations :—"Laws, in their most general signification, are the necessary relations derived from the nature of things. In this sense, all beings have their laws; the Deity has his laws; the material world its laws; the intelligences superior to man have their laws; the beasts their laws; man his laws.

"Those who assert that a blind fatality produced the various effects we behold in this world, are guilty of a very great absurdity; for can any thing be more absurd than to pretend that a blind fatality could be productive of intelligent beings?

"There is, then, a primitive reason; and laws are the relations which subsist between it and different beings, and the relations of these beings among themselves.

"God is related to the universe as creator and preserver; *the laws by which he has created all things are those by which he preserves them. He acts according to these rules*, because he knows them; he knows them because he has made them; and he made them because they are relative to his wisdom and power, &c.

"*Man, as a physical being, is, like other bodies, governed by invariable laws.*"—Spirit of Laws, b. i. c. i.

Justice Blackstone observes, that "Law, in its most general and comprehensive sense, signifies a rule of action; and *is applied indiscriminately to all kinds of action, whether animate or inanimate, rational or irrational.* Thus we say, the laws of motion, of gravitation, of optics, or mechanics, as well as the laws of nature and of nations."—"Thus, when the Supreme Being formed the universe, and created matter out of nothing, he impressed certain *principles* upon that matter, from which it can never depart, and without which it would cease to be. When he put that matter into motion, he established *certain laws of motion*, to which all moveable bodies must conform."—"If we farther advance from mere inactive matter to *vegetable and animal life*, WE SHALL FIND THEM STILL GOVERNED BY LAWS; more numerous, indeed, but *equally fixed and invariable.* The whole progress of plants, from the seed to the root, and from thence to the seed again—the method of animal nutrition, digestion, secretion, and all other branches of vital economy—are *not left to chance*, or the will of the creature itself, but are performed in a wondrous involuntary manner, and *guided by unerring rules laid down by the great Creator.* This, then, is the general signification of law, a rule of action dictated by some superior being; and, in those creatures that have neither power to think, nor to will, such laws must be invariably obeyed, so long as the creature itself subsists; for its existence depends on that obedience."—*Blackstone's Commentaries on the Laws of England*, vol. i. sect. 2.

"The word *law*," says Mr Erskine, "is frequently made use of, both by *divines and philosophers*, in a large acceptation, to express *the settled method of God's providence*, by which he preserves the order of the MATERIAL WORLD *in such a manner, that nothing in it may deviate from that uniform course which he has appointed for it.* And as brute matter is merely passive, without the least degree of choice upon its part, *these laws are* INVIOLABLY OBSERVED *in the material creation, every part of which continues to act, immutably, according to the rules that were from the beginning prescribed to it by infinite wisdom.* Thus philosophers have given the appellation of *law* to that motion which incessantly pervades and agitates the universe, and is ever changing the form and substance of things; dissolving some, and raising others, as from their ashes, to fill up the void; yet so, that amidst all the fluctuations by which particular things are affected, the universe is still preserved without diminution. Thus also they speak of the *laws* of fluids, of gravitation, &c. and *the word is used, in this sense, in several passages of the sacred writings*; in the book of Job, and in Proverbs viii. 29, where God is said to have given *his law* to the seas that they should not pass his commandment."—*Erskine's Institutes of the Law of Scotland*, book i. tit. i. sect. 1.

Cowper, in his *Table Talk*, after stating that vice disposes the mind to submit to the usurped command of tyranny, exclaims—

> "A dire effect, by one of Nature's laws,
> Unchangeably connected with its cause."

Discussions about the Laws of Nature, rather than inquiries into them, were common in France at the time of the Revolution; and, having become associated, in imagination, with the crimes and horrors of that period, they continue to be regarded, by some individuals, as inconsistent with religion and morality. A coincidence between the views maintained in the preceding pages, and a passage in Volney, has been pointed out to me as an objection to the whole doctrine. Volney's words are the following :—"It is a law of nature, that water flows from an upper to a lower situation; that it seeks its level; that it is heavier than air; that all bodies tend towards the earth; that flame rises towards the sky; that it destroys the organisation of vegetables and animals; that air is essential to the life of certain animals; that, in certain cases, water suffocates and kills them; that certain juices of plants, and certain minerals, attack their organs, and destroy their life; and the same of a variety of facts.

"Now, since these facts, and many similar ones, are constant, regular, and immutable, they become so many real commands, to which man is bound to conform, under the express penalty of punishment attached to their infraction, or well-being connected with their observance. So that if a man were to pretend to see clearly in the dark, or is regardless of the progress of the seasons, or the action of the elements; if he pretends to exist under water without drowning, to handle fire without burning himself, to deprive himself of air without suffocating, or to drink poison without destroying himself; he receives, for each infraction of the law of nature, a corporal punishment proportioned to his transgression. If, on the contrary, he observes these laws, and founds his practice on the precise and regular relation which they bear to him, he preserves his existence, and renders it as happy as it is capable of being rendered: and since all these laws, considered in relation to the human species, have in view only one common end, that of their preservation and their happiness, it has been agreed to assemble together the different ideas, and express them by a single word, and call them collectively by the name of the *Law of Nature.*"—Volney's *Law of Nature*, 3*d edit.* p. 21–24.

I feel no embarrassment on account of this coincidence; but remark, *first*, That various authors, quoted in the text and in this note, advocated the importance of the laws of nature, long before the French Revolution was heard of; *secondly*, That the existence of the laws of nature is as obvious to the understanding, as the existence of the external world, and of the human body itself, to the senses; *thirdly*, That these laws, being inherent in creation, must have proceeded from the Deity; *fourthly*, That if the Deity is powerful, just, and benevolent, they must harmonise with

the constitution of man; and, *lastly*, That if the laws of nature have been instituted by the Deity, and been framed in wise, benevolent, and just relationship to the human constitution, they must at all times form the highest and most important subjects of human investigation, and remain altogether unaffected by the errors, follies, and crimes of those who have endeavoured to expound them: just as religion continues holy, venerable, and uncontaminated, notwithstanding the hypocrisy, wickedness, and inconsistency of individuals professing themselves her interpreters and friends.

That the views of the natural laws themselves, advocated in this work, are diametrically opposite to the practical conduct of the French revolutionary ruffians, requires no demonstration. My fundamental principle is, that man can enjoy happiness on earth only by preserving his habitual conduct under the direction of the moral sentiments and intellect, and that this is the *law of his nature*. No doctrine can be more opposed than this to fraud, robbery, blasphemy, and murder.

It may be urged, that all past speculations about the laws of nature have proved more imposing than useful; and that, while the laws themselves afford materials for elevated declamation, they form no secure guides even to the learned, and much less to the illiterate, in practical conduct. In answer, I would respectfully repeat what has frequently been urged in the text, that before we can discover the laws of nature applicable to man, we must know, *first*, the constitution of man himself; *secondly*, the constitution of external nature; and, *thirdly*, we must compare the two. But, until the discovery of Phrenology, the mental constitution of man was a matter of vague conjecture and endless debate; and the connexion between his mental powers and his organised system was involved in the deepest obscurity. The brain, the most important organ of the body, had no ascertained functions. Before the introduction of this science, therefore, men were rather impressed with the unspeakable importance of the knowledge of the laws of nature, than extensively acquainted with those laws themselves; and even the knowledge of the external world actually possessed, could not, in many instances, be rendered available, on account of its relationship to the qualities of man being unascertained, and unascertainable so long as these qualities themselves were unknown.

The adaptation of the constitution of man and animals to the circumstances in which they are placed, has been noticed by former writers.

Lord Kames observes, that "The wisdom of Providence is in no instance more conspicuous than in adjusting the constitution of man to his external circumstances."—(*Sketches*, b. i. sk. 7.); and again, "The hand of God is nowhere more visible than in the nice adjustment of our internal frame to our situation in this world."—B. iii. sk. 2. chap. i. sect i.

Mr Stewart says: "To examine the economy of nature in the phenomena of the lower animals, and to compare their instincts with the physical circumstances of their external situation, forms one of the finest speculations of Natural History; and yet it is a speculation to which the attention of the natural historian has seldom been directed. Not only Buffon, but Ray and Derham, have passed it over slightly; nor, indeed, do I know of any one who has made it the object of a particular consideration but Lord Kames, in a short Appendix to one of his Sketches."—*Elements of the Philosophy of the Human Mind*, vol. iii. p. 368.

Mr Stewart also uses the following words:—"Numberless examples show that Nature has done no more for man than was necessary for his preservation, leaving him to make many acquisitions for himself, which she has imparted immediately to the brutes.

"My own idea is, as I have said on a different occasion, that both *instinct* and *experience* are here concerned, and that the share which belongs to each in producing the result, can be ascertained by an appeal to facts alone."—Vol. iii. p. 338.

The following is extracted from the *Quarterly Review*, vol. xxxi. p. 51:—"Each must coincide in the desire of the Stoic to harmonise his conduct with the physical and moral order of the universe. When to the knowledge of each the Christian adds a deeper insight into the government of the Almighty, and learns that to act in concert with the system of the universe is to promote his own eternal as well as his temporal happiness, his inducements are still stronger to employ the powers of self-government with which he has been gifted, in conforming his feelings and actions to the plan of the great Architect."

No. II.—Muscular Labour.

Text, p. 13.

So little ought the necessity for bodily exertion to be regarded as a curse, that in reality (as Dr Thomas Brown has eloquently illustrated in his 66th lecture) there is no human desire more powerful and universal than *the desire of action*, and none the denial of whose gratification is productive of greater uneasiness.

"To be happy," says Dr B., "it is necessary that we be occupied; and, without our thinking of the happiness which results from it, nature has given us a constant desire of occupation. We must exert our limbs, or we must exert our thought; and when we exert neither, we feel that languor of which we did not think before, but which, when it is felt, convinces us how admirably our desire of action is adapted for the prevention of this very evil, of which we had not thought; as our appetites of hunger and thirst are given to us for the preservation of health, of which we think as little, during the indulgence of our appetites, as we think during our occupation, of the languor which would overwhelm us if wholly unoccupied. How wretched would be the boy, if he were to be forced to lie even on the softest couch, during a whole day, while he heard, at intervals, the gay voices of his playmates without, and could distinguish, by these very sounds, the particular pastimes in which they were engaged! How wretched, in these circumstances, is man himself; and what fretfulness do we perceive even on brows of more deliberate thought—on brows too, perhaps, that, in other circumstances, are seldom overcast—if a few successive days of wet and boisterous weather have rendered all escape into the open air, and the exercises which this escape would afford, impossible!

"Without the knowledge of the pleasure that is thus felt in mere exertion, it would not be easy for us to look with satisfaction on the scene of human toil around us—which assumes instantly a different aspect when we consider this happy principle of our mental constitution. Though we are apt to think of those who are labouring for others, as if they were not labouring for themselves also—and though unquestionably, from our natural love of freedom, any task which is *imposed* cannot be as agreeable as an occupation spontaneously chosen—we yet must not think that the labour itself is necessarily an evil, from which it would be happiness for man to be freed. Nature has not dealt so hardly with the *great multitude*; in comparison with whom the *smaller number*, for whose accommodation she seems to have formed a more sumptuous provision, are truly insignificant.....How different would the busy scene of the world appear, if we could conceive that no pleasure attended the occupations to which so great a majority of our race would then seem to be *condemned*, almost like slaves that are fettered to the very instruments of their daily task! How different from that scene, in which, though we perceive many labouring and a few at rest, we perceive in the labourer a pleasure of occupation, which those who rest would often be happy to purchase from him, and which they *do* sometimes endeavour to purchase, by the same means by which he has acquired it; by exercises as violent and unremitted as his, and

which have the distinction only of being of less advantage to the world than those toils by which *he* at once promotes his own happiness and contributes to the accommodation of others! It is pleasing thus to perceive a source of enjoyment in the very circumstance which might seem most hostile to happiness; to perceive in the labour itself, of which the necessity is imposed on man, a consolation for the loss of that very freedom which it constrains."—*Lectures on the Philosophy of the Human Mind*, vol. iii. p. 409–412.

No. III.—Progress of Phrenology.

Text, p. 28.

On its first introduction into Britain, in 1815, Phrenology was received by the press and the public with an unanimous shout of derision. The Edinburgh Review took the leading part in the work of abuse, boldly denouncing it as "trash," "despicable trumpery," "a collection of mere absurdities, without truth, connexion, or consistency," and "a piece of thorough quackery from beginning to end." To Phrenology, the following sentence, applied by Dr Chalmers to the philosophy of Sir Isaac Newton, is equally applicable:—"Authority scowled upon it, and taste was disgusted by it, and fashion was ashamed of it, and all the beauteous speculation of former days was cruelly broken up by this new announcement of the better philosophy, and scattered like the fragments of an aërial vision, over which the past generations of the world had been slumbering their profound and their pleasing reverie."—(*Astronom. Discourses*, ii. 55.) For a few years, the progress of Phrenology was completely stopped; but Dr Spurzheim having published a decisive reply to the reviewer, and in his lectures convinced many that the science had been most unfairly dealt with, the study was eagerly taken up in Edinburgh and other parts of Britain. The Phrenological Society, projected by the Rev. David Welsh, now Professor of Church History in the University of Edinburgh, was instituted in that city on the 22d of February 1820; and, in 1823, several of its members commenced the publication of a quarterly periodical, "The Phrenological Journal and Miscellany," which has now (July 1835) extended to forty-four numbers, or nearly nine octavo volumes. In 1824, the Society printed a volume of Transactions. The effect of these and other phrenological publications—and of the lectures of various phrenologists in different parts of the kingdom, particularly those of Dr Spurzheim himself—has been to diffuse the science far more rapidly than even its most sanguine advocates ventured fifteen years ago to anticipate. In France, a Phrenological Journal has for several years been published, under the superintendence of the Phrenological Society of Paris; and, in October 1833, there appeared at Boston, U. S., the first number of a periodical entitled "Annals of Phrenology," conducted by members of the Boston Phrenological Society, and a volume of which is now complete. In Britain, Phrenology has been from time to time attacked by various writers; but the effect has always been a decided acceleration of its progress—the defences of phrenologists having apparently been considered triumphant by the public.

The following is a list of places in which, so far as I am aware, Phrenological Societies have been formed:—

Scotland.—1820; Edinburgh.—1826; Glasgow, Dundee, Kilmarnock.—1828; Dunfermline.—1833; Greenock.—1834; Alyth, Stirling.

England.—1824; London, Wakefield, Exeter.—1827; Hull.—1829; Liverpool.—1830; Manchester.—1832: Portsmouth.—1834; Warwick.

Ireland.—1826; Belfast.—1829; Dublin.

France.—1831; Paris.

India.—1825; Calcutta.

United States.—1824; Philadelphia.—1826; Washington.—1832; Boston.—1834; Hingham, Nantucket, Brunswick, Andover, Amherst, Hanover, Reading, Leicester, Worcester, Providence, Hartford, Oneida.

Other Phrenological Societies, of which I have not heard, have probably been instituted elsewhere; and it is understood that some of those mentioned in the foregoing list are at present in a dormant condition.

Among the members of the medical profession, Phrenology has many talented defenders and admirers. Professor Elliotson of London declares that "Gall has the immortal honour of having discovered particular parts of the brain to be the seat of different faculties, sentiments, and propensities."—(*Transl. of Blumenbach's Physiology*, 4th edit. p. 204.) Mr Abernethy says, "I readily acknowledge my inability to offer any rational objections to Gall and Spurzheim's system of Phrenology, as affording a satisfactory explanation of the motives of human actions."—(*Reflections on Gall and Spurzheim's System, &c.* p. 48.)—Dr Barlow, Physician to the Bath United Hospital and Infirmary, alludes to Phrenology as a science in which he "has no hesitation to avow his firm belief; and which, justly estimated, has more power of contributing to the welfare and happiness of mankind, than any other with which we are acquainted."—(*Cyclop. of Pract. Med.*, art. Education, Physical.) Dr Conolly, lately one of the Medical Professors in the London University, and now President of the Phrenological Society of Warwick, says, "I can see nothing which merits the praise of being philosophical in the real or affected contempt professed by so many anatomists and physiologists," for the science of Phrenology.—(*On the Indications of Insanity*, p. 135.) Dr Mackintosh says, "Although I must confess that I have had neither time nor opportunity to examine the system of those distinguished anatomists and physiologists, Gall and Spurzheim, with that care and attention which the importance of the subject demands, and which might enable me to give a decided opinion respecting the truth of all its parts, yet experience and observation oblige me to state, that much of their doctrines appears to be true, and that science owes a great deal to the labours of the gentlemen who have been engaged in phrenological inquiry."—(*Principles of Pathology*, 3d edit. ii. 4.) "The science," says Mr Macnish, "is entirely one of observation; by that it must stand or fall, and by that alone ought it to be tested. The phrenological system appears to me the only one capable of affording a rational and easy explanation of the phenomena of mind. It is impossible to account for dreaming, idiocy, spectral illusions, monomania, and partial genius, in any other way. For these reasons, and for the much stronger one, that having studied the science for several years with a mind rather hostile than otherwise to its doctrines, and found that nature invariably vindicated their truth, I could come to no other conclusion than that of adopting them as a matter of belief, and employing them for the explanation of phenomena which they alone seem calculated to elucidate satisfactorily. The system of Gall is gaining ground rapidly among scientific men, both in Europe and America. Some of the ablest physiologists in both quarters of the globe have admitted its accordance with nature; and, at this moment, it boasts a greater number of proselytes than at any previous period of its career. The prejudices still existing against it result from ignorance of its real character. As people get better acquainted with the science, and the formidable evidence by which it is supported, they will think differently."—(*Philosophy of Sleep*, 2d edition, preface.) Similar passages might be quoted from other esteemed medical writers; but it is sufficient to add, that Andral, one of the highest medical authorities in Europe, was recently President of the Phrenological Society of Paris; that the celebrated Broussais expounds and defends the science in his lectures; that the Medico-Chirurgical Review, which is unquestionably at the head of the British medical periodicals, has for many years adopted Phrenology as founded in nature; and that a conviction of the truth and importance of the science is daily forcing itself upon many, who, before making themselves acquainted with it, were among its bitter opponents. The simplicity and practical cha-

racter of the phrenological *philosophy* have induced not a few to doubt the possibility of its being founded on *physiological* error. If, as has been well remarked, the truth and beauty of Gall and Spurzheim's philosophical opinions be admitted, one of two conclusions is inevitable: We must either grant the soundness of the organology from which those opinions sprung, or ascribe to the individuals who first taught them an amount of knowledge and talent which they would have blushed to hear attributed to them, and their possession of which is far more incredible than the entire body of phrenological science.

No. IV.—Organic Laws.

Text, p. 32.

On the subject of the sufferings of women in childbed, the following authorities may be referred to:—

"One thing," says Mr Alison, "is very remarkable, and occurs in most cases of concealment and child-murder, viz. the strength and capability for exertion evinced by women in the inferior ranks shortly after childbirth—appearances so totally different from those exhibited in the higher orders, that, to persons acquainted only with cases among the latter, they would appear incredible. In the case just mentioned (that of Catharine Butler or Anderson, at Aberdeen, in spring 1829), the mother, two or three days after her delivery, walked from Inverury to Huntly, a distance of twenty-eight miles, in a single day, with her child on her back. Similar occurrences daily are proved in cases of this description. It is not unusual to find women engaged in reaping retire to a little distance, effect their delivery by themselves, return to their fellow-labourers, and go on with their work during the remainder of the day, without any other change of appearance but looking a little paler and thinner. Such a fact occurred in the case of Jean Smith, Ayr, spring 1824. Again, in the case of Ann Macdougall, Aberdeen, spring 1823, it appeared that the pannel, who was sleeping in bed with two other servants, rose, was delivered, and returned to bed, without any of them being conscious of what had occurred. Instances have even occurred in which women have walked six and eight miles on the very day of their delivery, without any sensible inconvenience. Many respectable medical practitioners, judging from what they have observed among the higher ranks, would pronounce such facts impossible: but they occur so frequently among the labouring classes as to form a point worthy of knowledge in criminal jurisprudence; and to render perfectly credible what is said of the female American Indians, that they fall behind for a little, on their journeys through the forests, deliver themselves, and shortly make up to their husbands, and continue their journey with their offspring on their back."—*Alison's Principles of the Criminal Law of Scotland*, pp. 161, 162.

Mr Lawrence observes, that "the very easy labours of Negresses, native Americans, and other women in the savage state, have been often noticed by travellers. This point is not explicable by any prerogative of physical formation; for the pelvis is rather smaller in these dark-coloured races than in the European and other white people. Simple diet, constant and laborious exertion, give to these children of nature a hardiness of constitution, and exempt them from most of the ills which afflict the indolent and luxurious females of civilised societies. In the latter, however, the hard-working women of the lower classes in the country often suffer as little from childbirth as those of any other race. Analogous differences, from the like causes, may be seen in the animal kingdom. Cows kept in towns, and other animals deprived of their healthful exercise, and accustomed to unnatural food and habits, often have difficult labours, and suffer much in parturition."—*Lawrence's Lectures on Physiology, Zoology, and the Natural History of Man.* 1822. Vol. ii. p. 190.

Among the Araucanian Indians of South America, "a mother, immediately on her delivery, takes her child, and going down to the nearest stream of water, washes herself and it, and returns to the usual labours of her station."—*Stevenson's Twenty Years' Residence in South America.* Vol. i. p. 9.

No. V.—Hereditary Descent of National Peculiarities.

Text, p. 44.

National *features* descend unchanged through many centuries, as is shown by Dr W. C. Edwards, in his work on "The Physiological Characters of Races of Mankind considered in their relations to History," published at Paris in 1829. An excellent abstract of this work, by Dr William Gregory, will be found in the Phrenological Journal, vol. ix. p. 97. Dr Edwards has adduced as an example the Jews. "In the first place, Jews in all countries resemble each other, and differ from the people among whom they live. Secondly, at distant periods, they had the same external characters. In the Last Supper of Leonardo da Vinci, this painter, who was an excellent naturalist and close observer, has painted faces which might be portraits of living Jews. This was 300 years ago; but we have evidence, that 3000 years ago the Jews had the same characters.

"In the copy of the paintings adorning the tomb of an Egyptian king, exhibited in London about ten years ago, there are representations of four different races in procession:—1*st*, The natives, very numerous, of a dark-brown tint, but without the woolly hair of the Negro; 2*d*, Negroes, with the black skin, thick lips, and woolly hair of that race; 3*d*, Persians; and, 4*th*, Jews, distinguished, says Belzoni, by their complexion and physiognomy. Dr Edwards says, 'I had seen, on the previous day, Jews in the streets of London; I thought that I now saw their portraits.'"

No. VI.—Hereditary Complexion.

Text, p. 46.

Mr W. B. Stevenson, in his "Narrative of Twenty Years' Residence in South America," vol. i. p. 286, says that he has "always remarked, that in cases where parents are of different castes, the child receives more of the colour of the father than of the mother." He made extensive observations during a long residence in Lima; a place, he remarks, than which there cannot be any more favourable for an examination of the influence of "the configuration of the human face, or of its colour, on the intellectual faculties." He gives the following Table, showing the mixture of the different castes, under their common or distinguishing names. But "this table," says he, "which I have endeavoured to make as correct as possible from personal observation, must be considered as general, and not including particular cases."

Father.	*Mother.*	*Children.*	*Colour.*
European	European	Creole	White.
Creole	Creole	Creole	White.
White	Indian	Mestiso	6-8ths White, 2-8ths Indian—Fair.
Indian	White	Mestiso	4-8ths White, 4-8ths Indian.
White	Mestiso	Creole	White—often very fair.
Mestiso	White	Creole	White—but rather sallow.
Mestiso	Mestiso	Creole	Sallow—often light hair.
White	Negro	Mulatto	7-8ths White, 1-8th Negro—often fair.
Negro	White	Zambo	4-8ths White, 4-8ths Negro—dark copper.
White	Mulatto	Quarteron	6-8ths White, 2-8ths Negro—Fair.
Mulatto	White	Mulatto	5-8ths White, 3-8ths Negro—Tawny.
White	Quarteron	Quinteron	7-8ths White, 1-8th Negro—very fair.
Quarteron	White	Quarteron	6-8ths White, 2-8ths Negro—Tawny.
White	Quinteron	Creole	White—light eyes, fair hair.
Negro	Indian	Chino	4-8ths Negro, 4-8ths Indian.
Indian	Negro	Chino	2-8ths Negro, 6-8ths Indian.
Negro	Mulatto	Zambo	5-8ths Negro, 3-8ths White.
Mulatto	Negro	Zambo	4-8ths Negro, 4-8ths White.
Negro	Zambo	Zambo	15-16ths Negro, 1-16th White—Dark.
Zambo	Negro	Zambo	7-8ths Negro, 1-8th White.
Negro	Chino	Zambo-Chino	15-16ths Negro, 1-16th Indian.
Chino	Negro	Zambo-Chino	7-8ths Negro, 1-8th Indian.
Negro	Negro	Negro	

No. VII.—Hereditary Transmission of Qualities.

Text, p. 47.

Fortified by the observations made at the commencement of the second section of Chapter V., I venture to cite some additional authorities, and to record some farther facts, observed by myself or communicated by persons on whose accuracy reliance may be placed, in support of the doctrine of the transmission of qualities by hereditary descent.

"The advice which I am now about to give, is indeed no other than what hath been given by those who have undertaken this argument before me. You will ask me, what is that? 'Tis this, that no man keep company with his wife for issue sake, but when he is sober—as not having before either drunk any wine, or, at least, not to such a quantity as to distemper him; for they usually prove winebibbers and drunkards whose parents begot them when they were drunk: wherefore Diogenes said to a stripling somewhat crack-brained and half-witted, Surely, young man, thy father begot thee when he was drunk."—*Plutarch's Morals*, translation published at London, 1718, vol. i. p. 2.

It is remarked by Burton in his *Anatomy of Melancholy*, that "if a drunken man gets a child, it will never, likely, have a good brain."

The passion for intoxicating liquors is sometimes hereditary. Dr Gall mentions a Russian family, in which the father and grandfather fell victims in early life to their propensity to drunkenness. The son, although he foresaw the consequences of this pernicious habit, continued to abandon himself to it, in spite of every resolution to the contrary; and the grandson, who was only five years of age when Dr Gall wrote, displayed even then a most decided inclination for spirituous liquors.—*Sur les Fonctions du Cerveau*, i. 410. As these facts can hardly be explained by referring to the influence of example, it follows that a peculiar state of the organisation, giving rise to the mental peculiarity, was in this case transmitted from one generation to another. In point of fact, Dr Caldwell has shown much reason for considering the irresistible desire for intoxicating liquors as a symptom of cerebral disease, having its special seat probably in the organ of Alimentiveness. As long as this disease exists, the desire is strongly felt, and every appeal to the understanding of the repentant and unhappy patient is in vain. "Am I asked," says Dr Caldwell, "how drunkenness then is to be cured, and the tormenting propensity which leads to it eradicated? I answer, by the same means which are found successful in the treatment of other forms of insanity, where the cerebral excitement is preternaturally high. These are, seclusion and tranquillity, bleeding, puking, purging, cold water, and low diet. In this prescription I am serious; and if it be opportunely adopted and resolutely persevered in, I freely peril my reputation on its success.....If interrogated on the subject, the resident physician of the Kentucky Lunatic Asylum will state that he finds, in the institution he superintends, no difficulty in curing *mania a potu* by the treatment here directed."—*Transylvania Journal of Medicine* for July, August, and September, 1832, p. 332, 3. See also *Phren. Jour.* vol. viii. p. 624. Dr Caldwell admits, however, that it is only recent and acute cases which can be speedily cured; those of long standing are much less tractable, and occasionally the disease may be found incurable. He thinks very justly, that nothing would tend more to diminish the prevalence of habitual drunkenness, than to have it deemed and proclaimed a form of madness, and dealt with accordingly. Hospitals erected for the reception of drunkards, and authority given to confine them there, would be among the most important institutions that could be established, and would effect an immense saving of life, health, property, and reputation. In regard to the hereditary transmission of this miserable tendency, Dr Caldwell observes:—Every constitutional quality, whether good or bad, may descend, by inheritance, from parent to child. And a long-continued habit of drunkenness becomes as essentially constitutional, as a predisposition to gout or pulmonary consumption. This increases, in a manifold degree, the responsibility of parents in relation to temperance. By habits of intemperance, they not only degrade and ruin *themselves*, but transmit the elements of like degradation and ruin to their posterity. This is no visionary conjecture, the fruit of a favourite and long-cherished theory. It is a settled belief resulting from observation—an inference derived from innumerable facts. In hundreds and thousands of instances, parents, having had children born to them while their habits were temperate, have become afterwards intemperate, and had other children subsequently born. In such cases, it is a matter of notoriety, that the younger children have become addicted to the practice of intoxication much more frequently than the elder—in the proportion of five to one. Let me not be told that this is owing to the younger children being neglected, and having corrupt and seducing examples constantly before them. The same neglects and profligate examples have been extended to all; yet all have not been equally injured by them. The children of the earlier births have escaped, while those of the subsequent ones have suffered. The reason is plain. The latter children had a deeper animal taint than the former."—*Transylvania Journal*, p. 341, 2.

The following case is recorded in the Phrenological Journal:—"I now proceed to give some facts strongly illustrative of the doctrine, that the faculties which predominate in power and activity in the parents, when the organic existence of the child commences, determine its future mental dispositions. This is a doctrine to which, from its great practical importance, I would beg leave to call your serious attention. It was remarked by the celebrated Esquirol, 'that the children whose existence dated from the horrors of the first French Revolution, turned out to be weak, nervous, and irritable in mind, extremely susceptible of impressions, and liable to be thrown by the least extraordinary excitement into absolute insanity.' Sometimes, too, family calamities produce serious effects upon the offspring. A very intelligent and respectable mother, upon hearing this principle expounded, remarked, that there was a very wide difference in the intellectual and moral developement between one of her children and the others; and accounted for this difference by the fact, that, during pregnancy, she received intelligence that the crew of the ship, on board of which was her son, had mutinied—that when the ship arrived in the West Indies, some of the mutineers, and also her son, had been put in irons—and that they were all to be sent home for trial. This intelligence acted so strongly upon her, that she suffered a temporary alienation of judgment. The report turned out to be erroneous, but this did not avert the consequences of the agitated state of the mother's feelings upon the daughter she afterwards gave birth to. That daughter is now a woman, but she is and will continue to be a being of impulses, incapable of reflection, and in other respects greatly inferior to her sisters."

Shakspeare seems to recognise the law of the transmission of temporary mental qualities, so much insisted on in the text:—

> "Come on, ye cowards; ye were got in fear,
> Though ye were born in Rome."
>
> *Coriolanus*, Act 1. Sc. 6.

A gentleman, who has paid much attention to the rearing of horses, informed me, that the male race-horse, when excited, but not exhausted, by running, has been found by experience to be in the most favourable condition for transmitting swiftness and vivacity to his offspring. Another gentleman stated, that he was himself present when the pale grey colour of a male horse was objected to; that the groom thereupon presented before the eyes of the male another female

from the stable, of a very particular but pleasing variety of colours, asserting that the latter would determine the complexion of the offspring; and that in point of fact it did so. The experiment was tried in the case of a second female, and the result was so completely the same, that the two young horses, in point of colour, could scarcely be distinguished although their spots were extremely uncommon. The account of Laban and the peeled rods laid before the cattle to produce spotted calves, is an example of the same kind.

The subjoined observations are extracted from "Outlines of the Veterinary Art, by Delabere Blaine," 3d edition, London, 1826, p. 327:—"That the organisation of the mare, her qualities, and even her diseases, are imprinted on her offspring, is hardly to be wondered at; but how are we to account for the effects which even her imagination has over the young within?—and that such is the case, we have innumerable proofs. As early as the patriarchal time, the fact was known and acted on. These anomalies in the gestation of the horse are less frequent than in the more closely domesticated animals, as dogs; yet there are not wanting instances of these mental impressions sinking deeply into the mind of the mare also, and being called into recollection and action in every future pregnancy. Lord Morton bred from a male quagga and a chestnut mare. The mare was afterwards bred from by a black Arabian horse; but still the progeny exhibited, in colour and mane, a striking resemblance to the quagga. D. Giles, Esq. had a sow of the black and white kind, which was bred from by a boar of the wild breed, of a deep chestnut colour: the pigs produced by this intercourse were duly mixed, the colour of the boar being in some very predominant. The sow was afterwards bred from by two of Mr Western's boars, and in both instances chestnut marks were prevalent in the latter, which in other instances had never presented any appearance of the kind.—*Phil. Trans.* 1821. See many other instances detailed in the *Canine Pathology*, 3d edition, p. 94."

The same writer gives some interesting details, to show the necessity for attending to the qualities of both parents in the breeding of horses. "The general characteristic form of the animal," says he, "is arbitrarily settled by nature, but the individualities of character in the separate organs is divided between the parents in nearly equal proportions.* This is exemplified in the breed which arises from the intermixture of the blood with the cart breed, where the extreme difference in form and character is nicely blended, yet the peculiarities of each remain distinguishable.† This proves the great error committed by the generality of farmers and small breeders, who, careless about the dam, breed from any mare they happen to possess or can procure, though it may even be unfitted for work by disease or age; and expect, provided they gain a leap from a tolerable stallion, to procure a valuable progeny. But it is in vain to hope for good form and useful qualities under such circumstances; for it will be generally found that the properties of each parent are equally proportioned in the progeny—and this fact is so well known to judicious breeders that they select both sire and dam with equal care. This dependence on the law by which the distribution of form and qualities is equally dependent on both parents, leads to the correction of defects in particular breeds, by selecting one parent eminent for a form or quality for which the other is as notoriously defective. Should a mare, otherwise valuable, present a low heavy forehand beyond even that which is her sexual characteristic, by choosing her a male more than usually thin and elevated in his crest, the defect will be remedied; whereas, if this be not attended to, whatever other properties each may possess, a serious defect is propagated and increased, and the produce can be of little value. It is also by a judicious attention to these circumstances that particular breeds are preserved with their original integrity, or new varieties introduced."—"It is by the choice of such parents as have the specified and definite form in the greatest perfection that we are enabled in the progeny to perpetuate the same, and by future selections to improve it. The merits and defects of each parent should be previously subjected to careful examination; and it is only by a judicious balancing of the one against the other that perfect success is to be expected. It is thus that our racers have outstripped all competitors; it is thus that a Russell, a Coke, a Bakewell, and an Ellman, have raised our ruminants to their present state; and it is by the same art that a Meynell, a Rivers, or a Topham, have produced unrivalled dogs. Our power over the animal form and qualities, by the selection of parents, and subjecting their progeny to particular nurture, careful domestication, restraint and discipline, is truly surprising. The shepherd's dog is in some breeds born with a short tail; thus the very base of the machine, that which of all the parts is the least subjected to alteration by any physical or moral agency, the bones, even becomes subjected to our caprice. The Hereford ox can be bred to a white face, or a half white face, and the length of the horns of others can be insured to an inch. The Spitalfields weavers assert that they can ensure almost to a certainty in the Marlborough breed of spaniels, which flourishes among them, any given quantity of colour, length of coat and texture of it, and regulate its disposition to curl or remain straight. The colour of the game-cock is arbitrarily imposed by the handler and feeder; and the experienced pigeon-fancier can breed to a feather. It should not be lost sight of, that qualities, as well mental as personal, are also to be cultivated and handed down in the breed. Many qualities may be considered as dependent on the organisation; such are hardihood, particular excellence in one pace, &c. These, it may be expected, *a priori*, might be perpetuated; and we are not surprised at a son of Eclipse or Matchem having speed in his gallop, or the produce of a Norfolk trotter excelling in that pace; but it is not equally taken into the account that temper, courage, docility, and patience under restraint, are equally handed down in hereditary descent as the peculiarities of form."—P. 321–323.

Mr Blaine expresses himself not hostile to in-and-in breeding; in defence of which he adduces several arguments and authorities, as well as his own experience, and says he "could quote innumerable other authorities" to the same effect. "But candour," he adds, "obliges me also to own, that there exists a large number of able antagonists to it also. My limits only allow me to add, that many practical breeders who are averse to breeding in succession from near relationship by blood, are favourable to it in a remote degree, which is particularly the case with some rearers of game fowls, who seek the intercourse of a third remove, which they call a '*nick*.' From these conflicting testimonies, the matter will, with many, be considered as problematical. With me, the only arguments against it which it appears cannot be satisfactorily answered are, that as hereditary diseases in some breeds are considerable, by this mode of breeding they would be perpetuated and probably increased; and likewise, that when breeding by relationship is a settled practice, accidental defects are too apt to be passed over unobserved."—P. 325.

Mr Blaine notices also a very important circumstance in relation to hereditary transmission—what is popularly denominated *breeding back*: that is to

* "It is by no means intended here to deny that the external characters of some breeds are not principally derived from the male, and of others from the female; but these anomalies, for which we cannot account, do not tend to alter the general similitude observed towards both parents. In the multiparous animals, it is often observed that the influence of one parent preponderates in a part of the progeny, and of the other in another part of it. Thus it happens that, when a pointer and setter breed together, it is not unusual to find part of the whelps almost perfect pointers, and the remainder as nearly true setters."

† "The hybrid mule divides in equal proportions the æquine and asinine characters; at the same time it must be allowed that the hinny, or produce of the stallion and ass, is more allied to the horse than the mule, or progeny from the male ass and mare."

say, the appearance in the second or third generation, of qualities of the progenitors, not observable in the first generation. "It is observed," he says, "that the progeny of the horse, of man, and of most domestic animals, shall bear a more striking resemblance to the grand-dam or grandfather than to their own immediate parents. It is evident that this is more likely where a common character has been preserved during successive generations, or, in turf language, where the blood has been preserved pure. A practical hint naturally presents itself on the extreme importance, therefore, of admitting no accidental admixture of blood, where it is peculiarly requisite that it should flow in true lineal descent; seeing that its debasing consequences are carried through whole generations, and unexpectedly appear in a third or fourth."—P. 326.

Dr Elliotson, in a note to the fourth edition of his Translation of Blumenbach's Physiology, p. 569, observes, that "experience teaches us that changes brought about in an animal after birth are not in general transmitted to the offspring. The causes of change in a species must therefore operate, not by altering the parents, but by disposing them to produce an offspring more or less different from themselves. Such is John Hunter's view of the question, and it is certainly confirmed by every fact. I fear that John Hunter has not generally the credit of this observation, but the following passage shows it to be clearly his:—'As animals are known to produce young which are different from themselves in colour, form, and disposition, arising from what may be called the unnatural mode of life, it shows this curious power of accommodation in the animal economy, that although education can produce no change in the colour, form, or disposition of the animal, yet it is capable of producing a principle which becomes so natural to the animal, that it shall beget young different in colour and form; and so altered in disposition as to be more easily trained up to the offices in which they have been usually employed; and having these dispositions suitable to such changes of form.'—Hunter *On the Wolf, Jackal, and Dog.*" Dr Elliotson adds a variety of illustrations, to which the reader is referred.

It is stated by Dr W. C. Edwards, in the work alluded to in No. V. of this appendix, that when animals of different species are crossed, they produce an animal of an intermediate type, or a mule; but that when different varieties of the same species are mixed, the result is often quite different. M. Coladon of Geneva, he says, made a very striking experiment, which bears strongly on this point. He procured a great number of white mice, as well as of common brown mice, studied their habits, and found means to cause them to breed. In his experiments he always put together mice of different colours, expecting a mixed race; but this did not occur in one instance. All the young mice were either white or brown, but each type was produced always in a state of purity. Even in the case of varieties of the same species, adds Dr Edwards, we have an intermediate type or mule; but this is when the varieties differ most from each other: when, as in the case of the mice, they approach very nearly, mules are not produced. In both cases we see one common principle, namely, that the mother often produces a being of a type different from her own—less so, however, in the latter case. This principle is seen even in the same variety; for here also the mother, in producing a male, gives birth to a being whose type differs, and in some cases differs very much, from her own. Now, says Dr E., the same is observed in man. The varieties which differ most strongly, such as the Negro and white, when crossed, produce mulattoes; and when varieties more nearly resembling each other are crossed, the descendants sometimes resemble one parent, sometimes the other, sometimes both. This Dr Edwards looks upon as the cause of the great variety observable in modern nations; among which, however, he thinks we can always observe specimens of the pure types which have entered into their composition. Thus, even if two races having considerable resemblance to each other, and in equal numbers, were to mix without limitation, the original types would still, in his opinion, frequently occur in their descendants. Dr Edwards very ingeniously applies to the elucidation of history, these and other principles connected with the physiological characteristics of races of mankind. For details, I refer to the Phrenological Journal, vol. ix. p. 97–108.

In the Quarterly Journal of Agriculture, No. I., there are several valuable articles illustrative of hereditary transmission in the inferior animals. I select the following examples:—

"Every one knows that the hen of any bird will lay eggs although no male be permitted to come near her; and that those eggs are only wanting in the vital principle which the impregnation of the male conveys to them. Here, then, we see the female able to make an egg, with yolk and white, shell and every part, just as it ought to be, so that we might, at the first glance, suppose that here, at all events, the female has the greatest influence. But see the change which the male produces. Put a Bantam cock to a large-sized hen, and she will instantly lay a small egg; the chick will be short in the leg, have feathers to the foot, and put on the appearance of the cock: so that it is a frequent complaint where Bantams are kept, that they make the hens lay small eggs, and spoil the breed. Reverse the case; put a large dunghill cock to Bantam hens, and instantly they will lay larger eggs, and the chicks will be good-sized birds, and the Bantam will have nearly disappeared. Here, then, are a number of facts known to every one, or at least open to be known by every one, clearly proving the influence of the male in some animals; and as I hold it to be an axiom that nature never acts by contraries, never outrages the law clearly fixed in one species, by adopting the opposite course in another—therefore, as in the case of an equilateral triangle on the length of one side being given, we can with certainty demonstrate that of the remaining; so, having found these laws to exist in one race of animals, we are entitled to assume that every species is subjected to the self-same rules—the whole bearing, in fact, the same relation to each other as the radii of a circle."

Very young hens lay small eggs; but a breeder of fowls will never set these to be hatched, because the animals produced would be feeble and imperfectly developed. He selects the largest and freshest eggs, and endeavours to rear the healthiest stock possible.

"*A method of obtaining a greater number of One Sex, at the option of the Proprietor, in the Breeding of Live Stock.*"—Extracted from the Quarterly Journal of Agriculture, No. I. p. 63.

"In the Annales de l'Agriculture Française, vols. 37 and 38, some very interesting experiments are recorded, which have lately been made in France, on the Breeding of Live Stock. M. Charles Girou de Buzareingues proposed at a meeting of the Agricultural Society of Séverac, on the 3d of July 1826, to divide a flock of sheep into two equal parts, so that a greater number of males or females, at the choice of the proprietor, should be produced from each of them. Two of the members of the Society offered their flocks to become the subjects of his experiments, and the results have now been communicated, which are in accordance with the author's expectations.

"The first experiment was conducted in the following manner:—He recommended very young rams to be put to the flock of ewes, from which the proprietor wished the greater number of females in their offspring; and also, that, during the season when the rams were with the ewes, they should have more abundant pasture than the other; while, to the flock from which the proprietor wished to obtain male lambs chiefly, he recommended him to put strong and vigorous rams four or five years old. The following tabular view contains the result of this experiment:—

FLOCK FOR FEMALE LAMBS.

Age of the Mothers.	Sex of the Lambs.	
	Males	Females
Two years	14	26
Three years	16	29
Four years	5	21
Total -	35	76
Five years and older -	18	8
Total -	53	84

N.B. There were three twin-births in this flock. Two rams served it, one fifteen months, the other nearly two years old.

FLOCK FOR MALE LAMBS.

Age of the Mothers.	Sex of the Lambs.	
	Males	Females
Two years	7	3
Three years	15	14
Four years	33	14
Total -	55	31
Five years and older -	25	24
Total -	80	55

N.B.—There were no twin-births in this flock. Two strong rams, one four, the other five years old, served it.

"The general law, as far as we are able to detect it, seems to be, that, when animals are in good condition, plentifully supplied with food, and kept from breeding as fast as they might do, they are most likely to produce females. Or, in other words, when a race of animals is in circumstances favourable for its increase, nature produces the greatest number of that sex which, in animals that do not pair, is most efficient for increasing the numbers of the race: But if they are in a bad climate or on stinted pasture, or if they have already given birth to a numerous offspring, then nature, setting limits to the increase of the race, produces more males than females. Yet, perhaps, it may be premature to attempt to deduce any law from experiments which have not yet been sufficiently extended. M. Girou is disposed to ascribe much of the effect to the age of the ram, independent of the condition of the ewe."

No. VIII.—Laws relative to Marriage and Education in Germany.

Text, p. 48.

"It cannot be altogether foreign to natural history," says Mr Loudon, "to notice the influence of climate, food, and political and religious regulations, on the human species; and we are unwilling to leave Germany without saying something on so interesting a people as the Germans. It will not be denied that man is subject to the same laws as other animals, and that his natural or inborn character must depend principally on the climate and products of the soil where he is placed. His factitious or civilised character will as certainly depend on his education, taking that word in its most extensive sense, as including parental care and example, scholastic tuition, religion, and government. In warm fertile countries, where nature produces every thing spontaneously, man becomes inactive, and has naturally few labours and few enjoyments. In extremely cold and inhospitable climates, the enjoyments of man are also few, because the labour necessary to overcome natural objects is too great for his powers. It would seem, therefore, that intermediate climates are more favourable for human happiness than either extremes; but whether such are at all times temperate, as those of many parts of Italy and Spain, or such as are alternately temperate and severe, as those of the south of Germany and the north of France, are the best, may perhaps be doubted. It appears that a climate where the winters are severe, has a considerable influence on the human character, by the necessity which it induces of forethought, in the laying up a provision of food for winter, and the greater attention and labour that are requisite in the article of clothing for that season. It is certain, on the other hand, that, in climates at all times temperate, the health, other circumstances being alike, must be better than in severe climates, where it is impaired by the artificial atmosphere of apartments during the winter season; and constant good health must necessarily have a considerable influence on the character. Supposing, therefore, all the artificial circumstances to be the same in two climates, such as that of the south of Germany, and that of Italy or the central parts of France, it seems reasonable to conclude that man would attain to a higher degree of perfection in the latter climates than in the former. So much for our theory of the influence of soil and climate on man; and, for farther details, we refer the reader to Dr Falconar's work on the subject.

"Of all the artificial or accidental circumstances which influence the character, personal education must be allowed to be the greatest, and next, religion and government. Manner of life, occupations, and pursuits, and even amusements, have an important influence. To do more than premise these matters, would be unsuitable to this Magazine; but what has been said became necessary as an introduction to what is to follow.

"Applying the above theory to the three states of Germany which we have passed through, Wurtemberg, Bavaria, and Baden, the climate and soil of these states seem favourable in the second degree; education, to a certain extent, is there universal; religion is, on the whole, more simple than in some other countries; and the laws and governments seem, at least, equal, in constitutional merits and impartial administration, to those of any people in Europe. The manner of life, or occupation, is chiefly agricultural; which, though not favourable to luxury or refinement, seems, without doubt, for the great mass of the people, the happiest mode of existence. Local and personal attachments are universally felt to be essential sources of happiness: and in no way can this feeling be gratified so easily and effectually as by the possession of land. In the three countries named, the great majority of the population are occupiers, in perpetuity, of a portion of the soil, either as absolute proprietors or as perpetual renters. This state of things is far from being favourable to what is called making money; but it is highly favourable to health and contentment. It is a great deal for a poor man to have something which he can call his own; something on which he can bestow labour, and from which he can, in consequence, extract enjoyment. The absolute necessities of life are few, and derived directly from the soil; the labouring man, therefore, who has a house and a few roods of land, is certain of a home and food; he increases the interest of his home by a wife; and parental care and solicitude, with connubial and filial attachment, fill up the measure of his happiness. These are the essential purposes and enjoyments of life, which nature intended for all men; which the poor man can enjoy as well as the rich; and for which no other enjoyment, either of the rich or the poor, the wise or the learned, can entirely compensate. In no part of Europe have we seen, or thought we have seen, these enjoyments so generally diffused as in the countries we have recently passed through, and more especially Wurtemberg. We entered on these countries, expecting to find the people not much better off than in France: but we could not resist the conviction produced by constant observation, and the result of various inquiry, that comfort and happiness exist to a much greater degree among the labouring classes of society in the south of Germany, than they do in Britain. The people, at first sight, have a milder and more civilised aspect. The dress of the country labourers, male and female, does not consist of such fine materials as in England; but one part of the dress is of a quality consistent with the others, and the whole is in a superior style, compared with the dress of the other classes of society. There is no such thing, in this part of Germany, as a man or woman in rags, or with a coat or gown of the best quality, and the hat or stockings in tatters, as is frequently the case, not only among labourers, but even among mechanics, in England. In short, the dress in Germany is in much better keeping. Both men and women of the labouring class here are more intelligent in their aspect, much more civil and polite on a first acquaintance, and much better furnished with conversation than the British labourers. What struck us particularly were, the great rarity of exceptions to this general description, the general uniformity of manner and character throughout the whole

country, and the total absence of public beggars. On inquiry, we found that there were few or no poor supported publicly, though every parish is obliged to support its poor when unable to work; and also, that there were few people in prison, either for debt or for crime of any kind.

"This state of things more particularly applies to Wurtemberg; and the causes, we think, may be very easily traced. The first and principal cause is a law respecting schools, which has existed, more or less, in the states of the south of Germany for above a century, but which has been greatly improved within the last thirty years. By this law, parents are compelled to send their children to school, from the age of six to fourteen years, where they must be taught reading, writing, and arithmetic, but where they may acquire as much additional instruction in other branches as their parents choose to pay for. To many of the schools of Bavaria large gardens are attached, in which the boys are taught the principal operations of agriculture and gardening in their hours of play; and, in all the schools of the three states, the girls, in addition to the same instruction as the boys, are taught knitting, sewing, embroidery, &c. It is the duty of the police and priest (which may be considered equivalent to our parish vestries) of each commune or parish, to see that the law is duly executed, the children sent regularly, and instructed daily. If the parents are partially or wholly unable to pay for their children, the commune makes up the deficiency. Religion is taught by the priest of the village or hamlet: and where, as is frequently the case in Wurtemberg, there are two or three religions in one parish, each child is taught by the priest of its parents; all of which priests are, from their office, members of the committee or vestry of the commune. The priest or priests of the parish have the regular inspection of the schoolmaster, and are required by the government to see that he does his duty; while each priest, at the same time, sees that the children of his flock attend regularly. After the child has been the appointed number of years at school, it receives from the schoolmaster, and the priest of the religion to which it belongs, a certificate, without which it cannot procure employment. To employ any person under twenty-one, without such a certificate, is illegal, and punished by a fixed fine, as is almost every other offence in this part of Germany; and the fines are never remitted, which makes punishment always certain. The schoolmaster is paid much in the same way as in Scotland; by a house, a garden, and sometimes a field, and by a small salary from the parish; and by fixed rates for the children.

"A second law, which is coeval with the school-law, *renders it illegal for any young man to marry before he is twenty-five, or any young woman before she is eighteen;* and a young man, at whatever age he wishes to marry, must show to the police and the priest of the commune where he resides, that *he is able, and has the prospect, to provide for a wife and family.*

"There are minor causes, but these two laws, and the general possession of land both by labourers and tradesmen, are the chief. Amongst the minor causes are the general simplicity of their forms of religion, and universal toleration; even the Catholic faith in Wurtemberg is unattended with the ceremony and spectacle with which it is exhibited in various parts of Germany and France. The equal footing on which the different religions are placed, is also favourable to liberality of sentiment and good neighbourhood. That particular mildness of feature and character, so different from what is met with in the labouring classes in England, is no doubt partly owing to the greater proportion of vegetables and fruits which enter into the general diet of the population; the almost total abstinence from strong liquors or spirits, the general drink being wine; and, perhaps, to the almost unremitted smoking of tobacco from morning to night."—*Magazine of Natural History.*

No. IX.—Death.

Text, p. 57.

The fact of a decrease in the mortality of England is strikingly supported by the following extract from the Scotsman of 16th April 1828. It is well known that this paper is edited by Mr Charles Maclaren, a gentleman whose extensive information, and scrupulous regard to accuracy and truth, stamp the highest value on his statements of fact; and whose profound and comprehensive intellect warrants a well-grounded reliance on his philosophical conclusions.

"Diminished Mortality in England.—The diminution of the annual mortality in England amidst an alleged increase of crime, misery, and pauperism, is an extraordinary and startling fact, which merits a more careful investigation than it has received. We have not time to go deeply into the subject; but we shall offer a remark or two on the question, how the apparent annual mortality is affected by the introduction of the cow-pox, and the stationary or progressive state of the population. In 1780, according to Mr Rickman, the annual deaths were 1 in 40, or *one-fortieth* part of the population died every year; in 1821, the proportion was 1 in 58. It follows, that, out of any given number of persons, 1000 or 10,000, scarcely more than two deaths take place now for three that took place in 1780, or the mortality has diminished 45 per cent. The parochial registers of burials in England, from which this statement is derived, are known to be incorrect; but as they continue to be kept without alteration in the same way, the errors of one year are justly conceived to balance those of another, and they thus afford *comparative* results, upon which considerable reliance may be placed.

"A community is made up of persons of many various ages, among whom the law of mortality is very different. Thus, according to the Swedish tables, the deaths among children from the moment of birth up to 10 years of age, are 1 in 22 per annum; from 10 to 20, the deaths are only 1 in 185. Among the old, again, mortality is of course great. From 70 to 80, the deaths are 1 in 9; from 80 to 90 they are 1 in 4. Now, a community like that of New York or Ohio, where marriages are made early and the births are numerous, necessarily contains a large proportion of young persons, among whom the proportional mortality is low, and a small proportion of the old, who die off rapidly. A community in which the births are numerous, is like a regiment receiving a vast number of young and healthy recruits, and in which, of course, as a whole, the annual deaths will be few compared with those in another regiment chiefly filled with veterans, though, among the persons at any particular age, such as 20, 40, or 50, the mortality will be as great in the one regiment as in the other. It may thus happen, that the annual mortality among 1000 persons in Ohio may be considerably less than in France, while the *Expectation of Life*, or the chance which an individual has to reach to a certain age, may be no greater in the former country than in the latter; and hence we see that a diminution in the rate of mortality is not a certain proof of an increase in the value of life, or an improvement in the condition of the people.

"But the effect produced by an increased number of births is less than might be imagined, owing to the very great mortality among infants in the first year of their age. Not having time for the calculations necessary to get at the precise result, which are pretty complex, we avail ourselves of some statements given by Mr Milne in his work on Annuities. Taking the Swedish tables as a basis, and supposing the law of mortality to remain the same for each period of life, he has compared the proportional number of deaths in a population which is stationary, and in one which increases 15 per cent. in 20 years. The result is, that when the mortality in the stationary society is *one* in 36.13, that in the progressive society is one in 37.33, a difference equal to 3½ per cent. Now, the popula-

tion of England and Wales increased 34.3 per cent. in the 20 years ending in 1821, but in the interval from 1811 to 1821, the rate was equivalent to 39¼ per cent. upon 20 years; and the apparent diminution of mortality arising from this circumstance must of course have been about 8½ per cent. We are assuming, however, that the population was absolutely stationary at 1780, which was not the case. According to Mr Milne (p. 437), the average annual increase in the five years ending 1784, was 1 in 55; in the ten years ending 1821, according to the census, it was 1 in 60. Deducting, then, the proportional part corresponding to the former, which is 3¼, there remains 5¼. If Mr Milne's tables, therefore, are correct, *we may infer that the progressive state of the population causes a diminution of 5¼ per cent. in the annual mortality*—a diminution which is only *apparent*, because it arises entirely from the great proportion of births, and is not accompanied with any real increase in the value of human life.

"A much greater change—not apparent but real—was produced by the introduction of vaccination in 1798. It was computed, that, in 1795, when the population of the British Isles was 15,000,000, the deaths produced by the small-pox amounted to 36,000, or nearly 11 per cent. of the whole annual mortality. (See article *Vaccination* in the Supplement to Encyclopædia Britannica, p. 713.) Now, since not more than one case in 330 terminates fatally under the cow-pox system, either directly by the primary infection, or from the other diseases supervening; the whole of the young persons destroyed by the small-pox might be considered as saved, were vaccination universal, and always properly performed. This is not precisely the case, but one or one and a half per cent. will cover the deficiencies; and we may therefore conclude, that *vaccination has diminished the annual mortality fully nine per cent.* After we had arrived at this conclusion by the process described, we found it confirmed by the authority of Mr Milne, who estimates, in a note to one of his tables, that the mortality of 1 in 40 would be diminished to 1 in 43–5, by exterminating the small-pox. Now, this is almost precisely 9 per cent.

"We stated, that the diminution of the annual mortality between 1790 and 1821 was 45 per cent., according to Mr Rickman. If we deduct from this 9 per cent. for the effect of vaccination, and 5 per cent. as only apparent, resulting from the increasing proportion of births—31 per cent. remains, *which, we apprehend, can only be accounted for by an improvement in the habits, morals, and physical condition of the people.* Independently, then, of the two causes alluded to, the value of human life since 1780 has increased in a ratio which would diminish the annual mortality from 1 in 40 to 1 in 52½—a fact which is indisputably of great importance, and worth volumes of declamation in illustrating the true situation of the labouring classes. We have founded our conclusion on data derived entirely from English returns; but there is no doubt that it applies equally to Scotland. It is consoling to find, from this very unexceptionable species of evidence, that though there is much privation and suffering in the country, the situation of the people has been, on the whole, progressively improving during the last forty years. But how much greater would the advance have been, had they been less taxed, and better treated! and how much room is there still for future amelioration, by spreading instruction, amending our laws, lessening the temptations to crime, and improving the means of correction and reform! In the mean time, it ought to be some encouragement to philanthropy to learn that it has not to struggle against invincible obstacles, and that even when the prospect was least cheering to the eye, its efforts were silently benefiting society."

Extract from Edinburgh Advertiser, 13th January 1829: "The following comparative table of the average duration of life at Geneva, during the last 260 years, is very remarkable. The growing improvement affords a striking proof of the benefits resulting from the progress of civilisation and the useful arts.

	Average duration. Years.	Months.
From 1560 to 1600, . .	18	5
1601 to 1700, . .	23	5
1701 to 1760, . .	32	
1761 to 1800, . .	33	7
1801 to 1814, . .	38	6
1815 to 1826, . .	38	10"

It has been mentioned to me, that the late Dr Monro, in his anatomical lectures, stated, that, as far as he could observe, the human body, as a machine, was perfect—that it bore within itself no marks by which we could possibly predict its decay—that it was apparently calculated to go on for ever—and that we learned only by experience that it would not do so; and some persons have conceived this to be an authority against the doctrine maintained in Chap. III. Sect. 2, that death is apparently inherent in organisation. In answer, I beg to observe, that if we were to look at the sun only for one moment of time, say at noon, no circumstance in its appearance would indicate that it had ever risen, or that it would ever set; but if we had traced its progress from the horizon to the meridian, and down again till the long shadows of evening prevailed, we should have ample grounds for inferring, that, if the same causes that had produced these changes continued to operate, it would undoubtedly at length disappear. In the same way, if we were to confine our observations on the human body to a mere point of time, it is certain that, from the appearances of that moment, we could not infer that it had grown up by gradual increase, or that it would decay; but this is the case only because our faculties are not fitted to penetrate into the essential nature and dependences of things. Any man who had seen the body decrease in old age, could, without hesitation, predicate, that, if the same causes which had produced that effect went on operating, dissolution would at last inevitably occur; and, if his Causality were well developed, he would not hesitate to say that a *cause* of the decrease and dissolution must exist, although he could not tell by examining the body what it was. By analysing alcohol, no person could predicate, independently of experience, that it would produce intoxication; and, nevertheless, there must be a cause in the constitution of the alcohol, in that of the body, and in the relationship between them, why it produces this effect. The notion, therefore, of Dr Monro, does not prove that death is not an essential law of organisation, but only that the human faculties are not able, by dissection, to discover that the cause of it is inherent in the bodily constitution itself. It does not follow, however, that this inference may not be legitimately drawn from phenomena collected from the whole period of corporeal existence.

No. X.—Edinburgh Philosophical Association.

Text, p. 59.

The history of this Association is thus stated in the address of its present Directors to the public:—

"Towards the close of a course of Lectures on Phrenology, by Mr George Combe, in the Clyde Street Hall, in the summer of 1832, it was proposed by several individuals who attended them, that an attempt should be made to form arrangements with properly qualified persons to deliver a course of Lectures on Geology, Chemistry, and Phrenology, during the winter 1832–1833, provided the public came forward with efficient support. Accordingly, a printed proposal was circulated, in which the interest taken by the public was sufficiently evinced by the fact, that, in the course of two days, no less than sixty individuals subscribed for tickets, and the demand increasing, arrangements were made with Mr Combe to lecture on Phrenology on Tuesday and Friday of each week, during the winter, and with Dr Murray to lecture on Chemistry on Monday, and Geology on Thursday. By the 29th October 1832, the number

of tickets subscribed for was as follows :—For Geology 95, for Chemistry 72, for Phrenology 84—making a total of 251 tickets. A general meeting of the subscribers was then held, when a Committee of their number was appointed to watch over the interests of the rising Association. It was agreed that sets of tickets for all the courses should be issued for L.1, 1s. and single tickets at a proportionally low rate ; as also that visitors should be admitted to any single lecture on payment of sixpence. So successful were the labours of the Directors, that, so early as the 28th of November 1833, only three weeks after the lectures commenced, it was found necessary to limit the number of visitors.

"The winter lectures were attended by crowded audiences, who throughout evinced the deepest interest in the subjects of the course. At their conclusion, the Directors made their first report to the public. The total number of tickets sold for the Geological course was 251, visitors admitted 142, making the entire proceeds L.72, 15s. ; for the Chemical course, 229 tickets were sold, and 387 visitors admitted, the entire proceeds amounting to L.99, 13s. 6d. ; and for the Phrenological course, 225 tickets were sold, and 700 visitors admitted, the proceeds being L.107, 8s. 6d. ; making a total of L.279, 17s. received ; and the expenses amounting to L.222, 8s. 9d., a free balance was left of L.57, 8s. 3d. at the credit of the Association.

"Towards the close of the winter, the Directors took into consideration the expediency of having a course of lectures on some interesting branch of Natural Science during the summer months. A communication was accordingly made to Professor Drummond of Belfast, who having agreed to lecture under the auspices of the Association, arrangements were entered into for his delivering a course on Botany. These lectures commenced on the 1st of May. The Directors had every reason to be satisfied with the result ; 191 tickets were sold at 7s. 6d., and 162 visitors admitted, the proceeds of the lectures amounting to L.75. There was also given during the summer, a short course of lectures on Education, by Mr Combe, the proceeds of which, with an additional donation of L.21, were, with Mr Combe's wonted liberality, presented to the Association.

"The lectures delivered under the auspices of the Association having been hitherto attended with the most unqualified success, the Directors proceeded immediately to make the necessary arrangements for a course during the winter 1833–1834. Mr George Lees, A.M. of the Scottish Naval and Military Academy, agreed to lecture on Natural Philosophy, the Rev. Thomas Gray on Astronomy, and Mr W. A. F. Browne, surgeon, on Physiology and Zoology ; and Mr Combe kindly agreed to open the course by repeating his lectures on Popular Education. The price of the tickets to the whole three courses was fixed at L.1 ; and a syllabus was circulated to the public.

"On the 28th October, the winter session was opened by Mr Combe, under the most cheering prospects of success. Up till the 31st December 1833, the number of tickets sold to the lectures on Natural Philosophy was 239, visitors admitted 164, proceeds L.101, 0s. 3d. ; to the class on Astronomy 298 tickets sold, visitors admitted 101, proceeds L.105, 19s. 6d. ; to the Physiological class 293 tickets sold, visitors admitted 155, proceeds L.89, 11s. 6d., making a total of 830 tickets sold, and 420 visitors admitted, the proceeds arising from which, with L.8, 10s. received from 340 visitors to Mr Combe's lectures on Education, made the total receipts L.305, 1s. 3d. The charges amounted to L.266, 2s. 10d., and a surplus of L.38, 18s. 5d. was thus left in the hands of the Association. From the commencement of the Association till 31st December 1833, the total number of tickets sold to all the lectures amounted to 1788, visitors admitted 2777 ; the total funds received, L.720, 6s. 6d., and the expenditure L.609, 6s. 6d. ; leaving a total surplus of L.111 in favour of the Association. Up till the close of the different courses delivered during this winter, the attendance continued most numerous, and the marked attention of the audience, and strong interest evinced in the experiments and demonstrations of the different lecturers, showed the increasing demand of the public for that species of instruction which it was the object of the Association to afford.

"During session 1834–35, a course of lectures was delivered on Phrenology by Mr Combe, a second course on Natural Philosophy by Mr George Lees, and a course on the Laws of the Animal Economy by Dr Allen Thomson—the price of an entire set of tickets to the whole lectures being One Guinea, and a proportionally small sum for each separate course. The success of these courses was equal to that of any former session. The number of tickets sold for the course on Phrenology was 224, visitors admitted 1114 ; proceeds L.126, 2s. 7d. ; for the course on Natural Philosophy 210 tickets were sold, and 161 visitors admitted, proceeds L.74, 7s. 4d. ; and for the course on Animal Economy, 197 tickets were sold, and 334 visitors admitted, proceeds L.73, 16s. 7d. ; making altogether 631 tickets sold, and 1609 visitors admitted, which, with the proceeds of six lectures on Sidereal Astronomy, contributed by the Rev. J. P. Nichol, yielded a total sum of L.290, 12s., as the entire proceeds of the session, and a clear balance in money and stock in the hands of the Association of L.208, 17s. 2d.

"During session 1835–36, the Association increased to 450 members. Lectures were delivered on Moral Philosophy by Mr George Combe ; on Chemistry, by Dr Andrew Fyfe ; and on Astronomy and Geology, by the Rev. J. P. Nichol, now Professor of Practical Astronomy in the University of Glasgow. The gross revenue of the session amounted to L.688 ; which enabled the Directors, after defraying all expenses, to afford the lecturers a fair remuneration, and to add a considerable sum to the funds of the Association."

Since the institution of the Association in 1832, instruction has been afforded to upwards of 4000 of the inhabitants of Edinburgh, in several of the most important and practically useful branches of science.

During the session about to commence, lectures are to be delivered on Natural History by Mr Carpenter, Professor of Medical Jurisprudence, Bristol ; on Natural Philosophy, by Mr Sang, F. R. S. E., V. P. S. A. ; and on Political Economy, by Thomas Murray, LL.D. The Directors have also secured the services of Mr Haydon of London, the eminent Historical Painter, who is to deliver ten lectures on Painting to the Association. And conceiving that it is part of their duty to present to the public the most recent and popular discoveries in Science, they have prevailed on J. C. Colquhoun, Esq. Advocate, to deliver four lectures on Animal Magnetism, comprising a view of its earliest history, of the more mature discoveries of Mesmer, his disciples and successors ; a description of the various processes employed by Magnetisers, and their effects ; with general observations on its importance to the sciences of Physiology and Pyschology ; and an investigation of the theories propounded to account for the phenomena.

The leading features of the Laws are—

1. That the Association shall consist of persons approved of by a majority of the Committee of Management for the time being, who, upon payment of One Guinea per annum, shall be entitled to admission to all lectures delivered under the auspices of the Association, and shall have a voice in passing or altering all laws, and a vote in the election of Office-bearers.

2. That Members of three years' standing shall be entitled to a ticket of admission to all the Lectures to be delivered to the Association, at the price of *seven shillings*.

3. That the Association shall be under the management of a Committee of its Members, consisting of twenty-four Ordinary Directors, elected by the Members at a General Meeting held for that purpose. The

eight Ordinary Directors at the top of the list shall retire annually, and shall be ineligible to office for one year.

4. It shall be the duty of the Directors (whose services are to be gratuitous) to provide places for meeting; to determine subjects upon which lectures shall be given; to engage lecturers; to fix the amount of their remuneration, and the price at which tickets shall be sold to the public; to determine applications from individuals wishing to become members of the Association; to pay all necessary expenses; and in general to do whatever they may think calculated to promote the interests of the Association.

5. Individuals shall be allowed to purchase tickets for admission to one or more of the lectures without becoming members.

6. That the funds shall be deposited in a Chartered Bank, in name of the President, Treasurer, and Secretary, for the time; and all drafts on the account must be signed by the Treasurer, along either with the President or Secretary.

October 8, 1836.

No. XI—Infringement of Moral Laws.

Text, p. 62.

The deterioration of the operative classes of Britain, which I attribute to excessive labour, joined with great alternations of high and low wages, and occasionally with absolute idleness and want, is illustrated by the following extract from a Report on Emigration, by a Committee of the House of Commons :—

"Joseph Foster, a weaver, and one of the deputies of an emigration society in Glasgow, states that the labour is all paid by the piece; the hours of working are various, sometimes eighteen or nineteen out of twenty-four, and even all night once or twice a-week; and that the wages made by such labour, after deducting the necessary expenses, will not amount to more than 4s. 6d. to 7s. per week, some kinds of work paying better than others. When he commenced as a weaver, from 1800 to 1805, the same amount of labour that now yields 4s. 6d. or 5s. would have yielded 20s. There are about 11,000 hand-looms going in Glasgow and its suburbs, some of which are worked by boys and girls, and he estimates the average net earnings of each hand-weaver at 5s. 6d. The principal subsistence of the weavers is oatmeal and potatoes, with occasionally some salt herrings.

"Major Thomas Moodie, who had made careful inquiries into the state of the poor at Manchester, states that the calico and other light plain work at Bolton and Blackburn yields the weaver from 4s. to 5s per week, by fourteen hours of daily labour. In the power-loom work, one man attends two looms, and earns from 7s. 6d. to 14s. per week, according to the fineness of the work. He understood that, during the last ten years, weavers' wages had fallen on an average about 15s. per week.

"Mr Thomas Hutton, manufacturer, Carlisle, states that there are in Carlisle and its neighbourhood about 5500 families, or from 18,000 to 20,000 persons dependent on weaving. They are all hand-weavers, and are now in a very depressed state, in consequence of the increase of power-loom and factory weaving* in Manchester and elsewhere. Taking fifteen of his men, he finds that five of them, who are employed on the best work, had earned 5s. 6d. per week for the preceding month, deducting the necessary expenses of loom-rent, candles, tackling, &c.; the next five, who are upon work of the second quality, earned 3s. 11d.; and the third five earned 3s. 7½d. per week. They work from fourteen to sixteen hours a-day, and live chiefly on potatoes, butter-milk, and herrings.

"Mr W. H. Hyett, Secretary to the Charity Committee in London, gives a detailed statement, to show, that, in the Hundred of Blackburn, comprising a population of 150,000 persons, 90,000 were out of employment in 1826! In April last, when he gave his evidence before the Committee, these persons had generally found work again, but at very low wages. They were labouring from twelve to fourteen hours a-day, and gaining from 4s. to 5s. 6d. per week.

"*Extract from Lord Advocate Sir William Rae's Speech in the House of Commons, 11th March 1828, on the additional Circuit Court of Glasgow.*

"The Lord Advocate, in rising to move for leave to bring in a bill to 'authorise an additional Court of Justiciary to be held at Glasgow, and to facilitate criminal trial in Scotland,' said he did not anticipate any opposition to the motion A great deal had been said of the progress of crime in this country, but he was sorry to say crime in Scotland had kept pace with that increase. A return had been made of the number of criminal commitments in each year, so far back as the year 1805. In that year the number of criminal commitments for all Scotland amounted only to 85. In 1809, it had risen to between 200 and 300; in 1819–20, it had increased to 400; and, by the last return, it appeared, that, in 1827, 661 persons had been committed for trial. He was inclined to think that the great increase of crime, particularly in the west of Scotland, was attributable, in no small degree, to the number of Irish who daily and weekly arrived there. He did not mean to say that the Irish themselves were in the habit of committing more crime than their neighbours; but he was of opinion that their numbers tended to reduce the price of labour, and that an increase of crime was the consequence. Another cause was the great disregard manifested by parents for the moral education of their children. Formerly, the people of Scotland were remarkable for the paternal care which they took of their offspring. That had ceased in many instances to be the case. Not only were parents found who did not pay attention to the welfare of their children, but who were actually parties to their criminal pursuits, and participated in the fruits of their unlawful proceedings. When crime was thus on the increase, it was necessary to take measures for its speedy punishment. The great city of Glasgow, which contained 150,000 inhabitants, and to which his proposed measure was meant chiefly to apply, stood greatly in need of some additional jurisdiction. This would appear evident, when it was considered that the court met there for the trial of capital offences, had also to act in the districts of Renfrew, Lanark, and Dumbarton. In 1812, the whole number of criminals tried in Glasgow was only 31; in 1820, it was 83; in 1823, it was 85; and in 1827, 211.—The learned lord concluded by moving for leave to bring in a bill to authorise an additional circuit court of justiciary to be held at Glasgow, and to facilitate criminal trial in Scotland."

* In what is called factory-weaving, an improved species of hand-loom is employed, in which the dressing and preparation of the web is effected by machinery, and the weaver merely sits and drives the shuttle.

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